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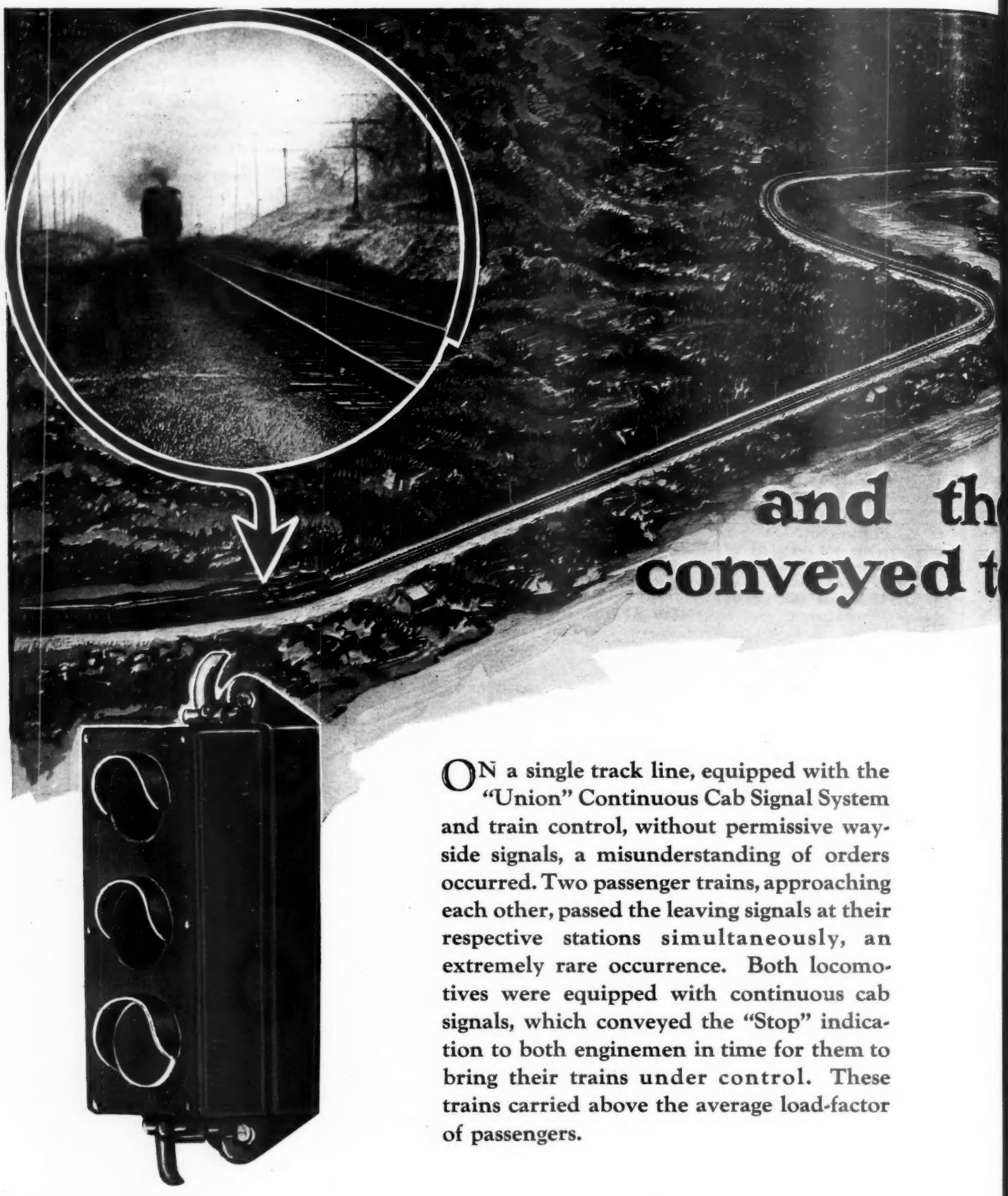

ON a single track line, equipped with the "Union" Continuous Cab Signal System and train control, without permissive wayside signals, a misunderstanding of orders occurred. Two passenger trains, approaching each other, passed the leaving signals at their respective stations simultaneously, an extremely rare occurrence. Both locomotives were equipped with continuous cab signals, which conveyed the "Stop" indication to both enginemen in time for them to bring their trains under control. These trains carried above the average load-factor of passengers.

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RAILWAY AGE

The Railway Situation and the Public Interest

The movement of the railroads for a general advance in freight rates raises two classes of questions. Some of these relate to what should be done, in the public interest, to meet the emergency with which the railways are now confronted. Others relate to what should be done by the state and national governments, to effect in the public interest, a lasting solution of the nation's transportation problem.

Only those who are prejudiced or do not know the facts will deny that the railways are confronting a real emergency. In the first one-third of this year their total earnings were 19 per cent less than in 1930 and 27½ per cent less than in 1929. Their operating expenses were 17 per cent less than in 1930 and 22 per cent less than in 1929. This reduction of operating expenses has been accomplished by drastic retrenchments, as a result of which the properties of most railways are deteriorating. In spite of these retrenchments the net operating income earned in the first third of this year was almost 40 per cent less than in 1930 and almost 60 per cent less than in 1929, and was at the annual rate of return of only 2.11 per cent on their property investment. Many railroads, including some that have been regarded as among the strongest as well as the most important, are failing to earn the interest on their bonds. About five billion dollars of railroad bonds and other securities are owned by life insurance companies and savings banks. When a railroad cannot earn the interest on its bonds it is headed for bankruptcy. Bankruptcy of numerous railroads would have disastrous effects upon life insurance companies and savings banks owning their securities.

If general business and traffic were improving it might reasonably be denied that any emergency exists, but railroad traffic has not yet begun to improve. In the first five months of 1931 freight car loadings were 25 per cent less than in 1929 and 18 per cent less than in 1930. In May, the last month in the period mentioned, they were 28 per cent less than in 1929 and 19 per cent less than in 1930. In other words, in the last month for which figures are available the decline in traffic was relatively the largest yet reported. There can be no prospect of an improvement in earnings until there is an improvement in traffic.

With no improvement in traffic in sight, failure to secure an advance in rates might, and probably would, result in numerous railroad bankruptcies. Such an advance in rates as is proposed would enable the railroads to pass safely through the crisis. The industry, commerce and people of the country would have to pay the higher rates. Every branch of industry and commerce and every class of people are suffering from the depression. Would it be better for the public for an advance in rates to be refused, and for many railroads to be allowed to continue to drift toward disaster, or for the public to pay enough more in freight rates to tide the railways over?

Advances in Rates and the Depression

It will be pointed out that a period of depression is a bad time to advance rates. It should be recalled, however, that when general business was good it was repeatedly pointed out that the railways constantly were falling far short of earning a "fair return", and that if they could not earn a reasonable return on the rates in effect when business was good they would become unable on the same level of rates to earn enough to avoid financial trouble when a depression came. When business was good the western lines asked for a general advance which the Interstate Commerce Commission refused upon the ground that they did not need it. If rates had been made high enough to enable a fair return to be earned when business was good there would be no need for an advance in them now. If an advance in rates cannot be made when business is good because it is not needed, and cannot be made when business is bad when it is needed, it follows that rates never can be advanced, regardless of conditions.

Freight rates are only a part of the costs of industry and commerce, and only a very small percentage of the prices paid by consumers for most commodities. On the other hand, they are the source of about 80 per cent of the revenues of the railroads. Consequently, the direct effects produced by an advance in freight rates upon the costs of industry and commerce, and the prices paid by consumers, would be relatively very small as compared with the beneficial effects produced upon the railway situation. Indirectly, an advance in rates would be beneficial to industry, commerce and the public. It would solve the ominous financial problem with which the railways directly, and the public indirectly, are confronted by enabling the railways to maintain their bonds as investment securities and to refund those upon which the principal became payable, and by enabling them to discontinue their present policy of retrenching more and more severely in the maintenance of their properties, which would mean that they would employ more labor and buy more materials and supplies than they otherwise would. The more needed labor the railways employ and the more needed purchases they make the better it will be for general business.

The National Foreign Trade Convention recently issued a statement to the public in which it said, "The chief factor of the present situation is profitless merchandising. An essential necessity of the present situation is an advance in commodity prices." Profitless railroading is as bad for general business as profitless merchandising. An advance in commodity prices is needed to eliminate profitless merchandising as a means of reviving prosperity. An advance in freight rates that will stop profitless railroading is as essential to the revival of prosperity as an advance in commodity prices that will stop profitless merchandising.

The railways ask the Interstate Commerce Commission to authorize a general advance of 15 per cent in freight rates. It is claimed, and with good reason, that after the general advance was authorized it would be necessary to make many downward readjustments to prevent losses of different kinds of traffic to carriers by water and highway. Steamship lines using the Panama canal and many other carriers by highway and inland waterway are themselves operating at a loss because their rates are too low to be profitable, and many of these carriers might follow an advance in railway rates with an advance in their own rates, with the result that the railways would be in danger of losing less traffic than is now anticipated.

Policies and Rate Making

It is true, however, that the railways are subject to competition which may make it impracticable for them to maintain higher rates on a large amount of traffic, and this calls attention to a new situation which greatly complicates our national transportation problem, and especially the problem of the regulation of rates. It always has been their policy to make higher rates on valuable commodities than on cheap and bulky commodities. It was long their policy to so adjust their rates as to meet water competition, and, if necessary, to make lower rates for longer than for shorter hauls, but the general policy has been to make rates per mile higher for short than for long hauls, and the Interstate Commerce Commission has fixed rates more and more on a distance basis. The commission's policy of forbidding the railways to make lower rates to the Pacific coast than to intermediate points has resulted in diversion to the steamship lines of a very large tonnage. The most effective competition of motor trucks is for short hauls and for the more valuable commodities. On the principle of "charging what the traffic will bear" railway rates, under present conditions, would be made lower for longer than for shorter hauls to meet competition via the Panama canal; and would be made relatively higher than at present on cheap and bulky commodities as compared with more valuable commodities, and also relatively higher for long hauls than for short hauls, in order to meet motor truck competition.

Will the Interstate Commerce Commission make, or authorize the railways to make, such revolutionary changes in present policies of rate making? They are needed to enable the railways to meet the competition of other means of transportation. The conditions that are causing them to be needed have not been created by the railways, but by the government policies of subsidizing other means of transportation and not regulating their rates as those of the railways are regulated. These government policies, which give other means of transportation unfair competitive advantages over the railways, can and should be changed, and if they were changed the need for radical changes in present policies of ratemaking would be obviated. If, however, government policies that favor other means of transportation are not changed, and no radical changes in present methods of railway ratemaking are authorized, traffic will continue to be diverted from the railways to other means of transportation entirely because of the unfair government discrimination in favor of these other means of transportation.

"The country still needs its railways and can support them", said the Interstate Commerce Commission in its last annual report. It can support them only by letting them charge high enough rates on the traffic they actually handle to derive adequate earnings from that traffic, or by subsidizing them, as it does other carriers. The more traffic the state and national governments divert from the railways by unfairly aiding their competitors by waterway and highway, the higher will be the rates the railways will require on their remaining traffic in order to provide satisfactory service, unless they are to be subsidized at the expense of the taxpayers in the same way in which other carriers are now.

Future Problems of the Mechanical Officer

At no time since the organization of the Mechanical Division have the officers of the mechanical departments been faced with such difficult conditions as those prevailing as they gather at Chicago for the Division's twelfth annual meeting. With reductions in the volume of traffic which amount to 25 per cent in the monthly net ton-miles in two years, the number of stored locomotives has increased from less than 6,000 in the spring of 1929 to almost 10,000 this year, with increases in freight-car surpluses from 221,000 to 603,000 within the same period. Some indication of the extent to which it has been necessary to close shops or reduce their operations to a few days per month is indicated by the reductions in hours in the various classes of employees engaged in maintenance of equipment, varying from approximately one-fourth to one-third of the monthly hours spent in this work at the end of 1929. Since the heavy curtailments have necessarily been in the shops engaged in classified or heavy repairs, these figures tell a story of a struggle to effect reductions in expenses without impairing the efficiency of the service, which has added gray hairs to the heads of many mechanical department officers.

One effect of the compulsions of such times as these is the subjection of all methods and practices to a critical scrutiny to which they are seldom subjected during periods of prosperity. Policies which have long been accepted without question are now being subjected to a critical examination which not all of them will survive. This, of course, applies primarily to practices involving immediate expenditures, but it does not stop there. Much thought is being given to the possibilities of consolidating immediate reductions in expenses which it has been necessary to effect, some of which are only temporary expedients, by a wise expenditure of capital which will place them on a solid foundation for the future. One such possibility lies in a change in the general attitude of railroad officers toward motive power.

Keeping Locomotives Up-To-Date

The period since the World War has been one of the most fruitful with respect to locomotive developments of any in the history of steam railroading. It has seen a complete change in the objective of the locomotive designer from one of producing tractive capacity without regard to speed, to one of producing a power plant capable of delivering a high horsepower output at high speeds. It has seen the beginning of the development of increasing steam pressures. It has seen changes in locomotive boiler proportions which have increased both efficiency and capacity. Special materials have demonstrated their value and mechanical improvements, such as the locomotive bed casting, have been developed which promise a material reduction in the cost of maintenance.

And yet during the past decade the railroads have apparently shown less interest in the possibilities offered by improved motive power than in any decade since the turn of the century. In 1909 less than half of the locomotives on the railroads of the United States were over ten years old. In 1919 three-fifths of the locomotives were over ten years old. In 1929 almost four-fifths of the locomotives were over ten years old and one-third were over twenty years old, while in 1919 but one-tenth were over twenty years old. Why?

The answer is found in the fact that during the decade prior to 1909 there was an increase in the total number of locomotives in steam railroad service in the United States of almost 60 per cent and an increase in aggregate tractive capacity of 120 per cent. In the next decade the increase in the number of locomotives was less than 17 per cent and in the aggregate tractive capacity about 58 per cent. During the first half of the last decade the aggregate tractive capacity increased 10 per cent and has remained fairly constant during the second half, and this has been effected with a reduction of about 12 per cent in the number of locomotive units.

This change in the past decade reflects a change in the growth of railroad traffic which has completely changed the outlook of the industry toward its own future. Throughout the period of the growth and development of the railroad system of the United States, and even after the extension of mileage had materially slowed up, traffic grew in a steady, geometrical proportion. The number of locomotives in service on all steam railroads in the United States increased from 38,000 to 59,000 from 1900 to 1909 and to about 69,000 in 1919. In 1929 there were not more than 61,000 locomotives on all public-service railroads of the United States.

So far as the future can be foreseen, it is now probable that the railroads will never again need to provide a large year-to-year increase in locomotive capacity.

But it was the need for this increase in locomotive capacity which, during past decades, effected a favorable balance between the old and the new in the total locomotive ownership of the railroads.

Will the railroads continue to allow the proportion of new locomotives to decrease, while the designers continue to pile up improvements adapted to meet conditions which the railroads are facing in acute form today?

When the demands of a rapidly increasing traffic were constantly forcing the railroads to provide additional facilities the value of a locomotive was measured in terms of the gross revenue which would be lost were it not available. Today the value of a new locomotive is measured in terms of its ability to perform more cheaply and more effectively a service already provided for. Its determination involves measuring the performance of the new in comparison with the performance of the old—in other words, measuring the obsolescence of the old. A negative attitude toward obsolescence must be replaced by a positive attitude—one which places the burden of proof on the old locomotives and constantly subjects their performance to a critical examination in view of the possibilities offered by current developments in locomotive design. Only in this way will the active locomotives of tomorrow be fitted to provide the quality of service demanded by the public at a cost satisfactory to the railroads.

New Conditions Require New Facilities

The railroads have just passed through an era of standardization in freight-car design. Since the construction of the first all-steel cars in 1898 the use of steel in freight cars has rapidly spread until today cars either of all-steel or composite construction have almost completely replaced cars of wood construction. In the universal interchange of freight cars between the railroads of North America the standardization of parts involved in running repairs has long been considered essential, and the extension of standardization to complete designs is highly desirable in order that weak designs may be eliminated and construction simplified.

An extensive program of standardization implies, in all basic features at least, that the ultimate in development has been reached. Universal standardization tends to discourage invention, except in refinement of details. To meet this situation, as far as it could be foreseen, the Mechanical Division in the development of its standard designs has wisely left the way open for the inventor, not only in the matter of appliances, but in such parts of the car structure itself as roofs, ends and doors.

The developments of the past few years, however, are making it increasingly evident that we are far from having attained the ultimate, either in types of cars or in the development of important details of construction. New conditions have developed in the railroad industry within the past decade, the effects of which were unforeseen ten years ago and which are only now beginning to be clearly evident.

The most important of these is highway competition which is causing a loss of considerable l.c.l. traffic moving over varying distances. As a result of this the railroads are faced with the necessity of effecting some solution of the problem of store-door collection and delivery. One of the advantages which a highway truck has over the railroad is its ability to move goods between the platform of the shipper and the door of the consignee without intermediate handling. The movement of such freight in box cars requires a minimum of two, and in most cases three, handlings in addition to those which are involved in the collection and final delivery.

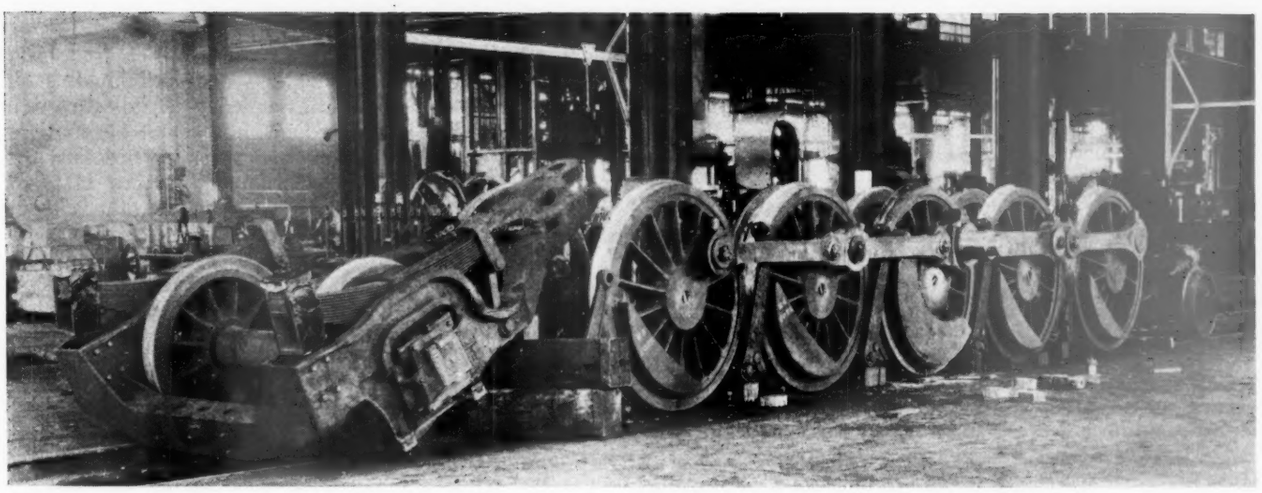
Several types of container cars have been developed with a view to meeting this condition, but none of these yet in service has fully demonstrated its universal adaptability to meet the needs of such service at all points on the railroads. Here is a field in which the inventor and engineer will find much to command his attention for years to come.

Changes in operating conditions are also opening new fields for invention in the construction of freight cars. Steadily increasing speeds and lengths of trains are focusing attention on the needs for improvement of shock-protection equipment. This applies both with respect to shocks in switching and train handling as well as to road shocks from irregular track surface. Developments intended to effect such improvements have already been brought out, but the field is a big one and will not be exhausted for years.

Another need of the future has now become evident. For many years there has been a steady increase in the average capacity of the cars on American railroads, with a proportionate increase in average weight. If the average load were increasing at the same rate as the average capacity, the proportionate increase in weight would not be of such serious concern. Unfortunately, however, the average car load is not increasing, with the result that a growing proportion of the total weight of modern long freight trains is producing no revenue, but continues to increase the demands on motive power. This problem is already receiving attention, and the use of welding in all-steel car construction is one measure which promises to effect an improvement. There is, however, ample room for intensive engineering development, possibly in the use of lighter materials as well as in better shock protection to effect a needed improvement in this direction.

In the minds of many Americans not conversant with the economics of transportation the question has been raised whether the steam railroad is not becoming an obsolete form of transportation. To those who are well informed it seems evident that the steam railroad will long continue to be the main reliance of America for its long-distance, heavy transportation. How extensively it is to become obsolete in those fields where it is now being subjected to the competition of other agencies depends upon the extent to which it adapts its equipment and its operations to perform this service more economically or more satisfactorily than it can be performed by the other agencies.

Improvements in the art which are already developed have made some equipment obsolete. Changes in conditions which demand advances in the art are making other equipment obsolete. Obsolete equipment in the future, more than ever in the past, will tend to produce obsolete railroads.



Wheeling Is a Simple Operation Once the Driving Wheels and Boxes, Binders, Shoes and Wedges, Rods, Brake Rigging and Trucks Are Assembled as Shown

Motive Power Effectively Maintained on the Union Pacific

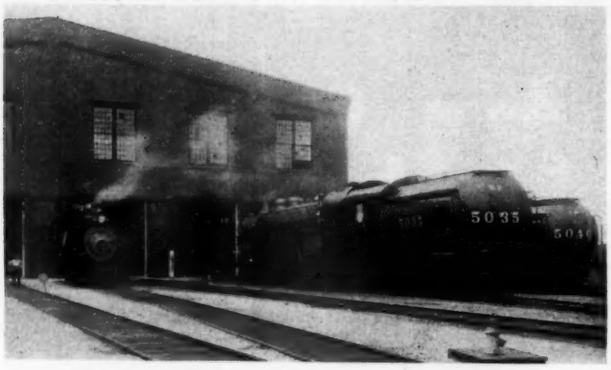
System policy contributes to operating economy by assuring increased locomotive reliability, longer mileage between heavy repairs and fewer days in shop

EARLY in 1923, the Union Pacific Railroad, and subsequently all four units of the Union Pacific System, adopted a policy of periodic monthly inspection and conditioning of locomotives, generally conceded to be one of the most important single factors in the successful extension of locomotive runs with their attendant operating economies. Between 1924 and 1931 locomotive utilization, measured in miles per active locomotive per month, increased 10 to 15 per cent; mileage between shoppings for general repairs, 80 per cent or more, and locomotive-miles per failure, over 100 per cent, a striking accomplishment in view of the greatly increased severity of the service due to higher train speeds, heavier trains and increased tractive force, as shown in one of the tables. The remarkable decrease (50 per cent in four years) in the number of locomotives found with federal defects also reflects a great improvement in motive-power conditions.

In conjunction with the careful monthly conditioning of locomotives at engine terminals and the greatly increased mileage between heavy repairs, the Union Pacific instituted in 1927 a program of concentrated attention on relatively fewer motive-power units undergoing repairs at one time in each shop, with the result that the average shopping time on heavy power was cut from 43 to 19.8 working days per locomotive given Class 2 repairs; 30 to 14.6 days for Class 3 repairs, and 20 to 8.6 days for Class 5 repairs.

A production time study system was also installed in the shops, providing a more accurate knowledge of conditions and an incentive for improvement not previously available. Effective labor-saving devices and methods developed at each system shop were applied to others, an improved standard-practice folio being developed. Friendly competition, as well as an interchange of ideas, was stimulated between the respective shop points, shop efficiency being proportionately increased. Without any sacrifice of quality and in spite of a large amount of betterment work, such as the application of locomotive bed castings, feedwater heaters, etc., the man-hours per Class 3 repairs on heavy Pacific type locomotives were cut from 6,000 in 1924 to 3,712 in 1931. Class 2 repairs dropped from 6,500 to 4,300 man-hours in the same period. Class 3 repairs to a 2-10-2 type locomotive required 5,400 man-hours in 1924 and only 4,500 man-hours in 1931.

There can be no question that the locomotive-maintenance methods referred to have permitted the Union Pacific to operate with a decreased number of active locomotives for a given volume of traffic by reducing the time lost in back shops and at intermediate terminals. Unit maintenance costs have also decreased somewhat, but not as much as would otherwise have been the case, owing to the increasingly heavy power and extensive betterment programs mentioned, as well as to the insistence on high quality work and the use of the best materials for the service requirements, within reasonable price limitations. The resultant generally high standard of maintenance of motive power, as indicated by a performance of 174,875 miles per locomotive failure



Union Pacific 5000-Class Locomotives and Shop Switcher at Omaha Shops

in 1930, contributes substantially to long runs, permitting powerful modern coal-burning locomotives to operate a maximum of 877 miles in passenger service over six subdivisions and 338 miles in freight service over three subdivisions.

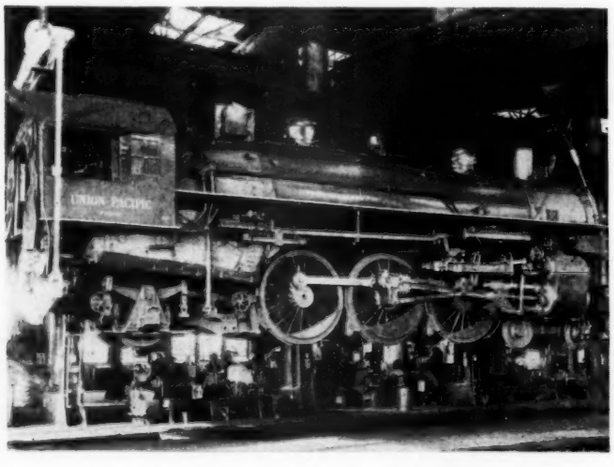
Heavy Maintenance Work Concentrated

Concentration, specialization, and modernization are three words which perhaps best describe the present locomotive shopping policy of the Union Pacific. Heavy maintenance operations on the system are concentrated essentially at five major shops; namely, Omaha, Neb., Cheyenne, Wyo., Pocatello, Idaho, Portland, Ore., and Los Angeles, Cal. In addition, Class 4 and 5 repairs are handled quite extensively at nine intermediate repair shops, which compares with nearly 25 intermediate points formerly making all classes of repairs.

Increased Locomotive-Miles per Failure, Union Pacific System

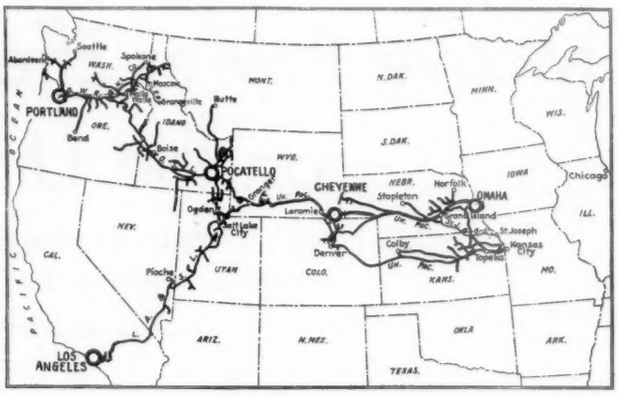
Year	No. of failures	Locomotive-miles run	Miles per failure
1924	594	49,914,402	83,999
1925	646	49,976,675	77,363
1926	433	50,835,275	124,330
1927	325	50,456,500	155,250
1928	319	52,824,165	165,593
1929	340	53,599,600	157,646
1930	281	49,099,993	174,875

To a limited extent, specialized classes of power are handled at the respective major repair shops. Maintenance forces become familiar with the work each must handle and secure the equipment and material needed for repairs without being required to carry all classes in stock. Maintenance operations within each shop are also handled by specialized gangs and individuals with consequent economy, but the tendency in this direction is somewhat offset by the reduced number of locomotives undergoing repairs at one time and the necessity of mechanics, in some cases, specializing on one class of work, possibly, but being qualified to handle other classes satisfactorily, if necessary.



Pacific Type Locomotive Being Handled by Shop Cranes at Omaha, Neb.

A notable improvement in the standards of shop machinery and labor-saving equipment has been accomplished on the Union Pacific in recent years. Typical new equipment installed includes machine tools, welding equipment, heating furnaces, electric drop pits, power-operated crane trucks, pneumatic tools, etc., which are such a vital factor in efficient shop production. Grinding machines, in particular, have proven their value in providing accuracy, smooth finish and minimum stock removal. All new crank pins, for example, are finished by grinding and crank pins, not removed from the wheel centers, are ground by means of a portable machine. With floating-type bushings, accurately finished, the service life of these bearings has been practically doubled, effecting large savings in labor and material costs as well as locomotive out-of-service time.



Major Locomotive Repair Shops on the Union Pacific System

Shop Production Time Study Produces Results

The results of the system of shop production time study, started in the Union Pacific Railroad locomotive department in 1927 and subsequently extended to all major and intermediate repair points on the system, have already been outlined. The principal feature of the system is its simplicity, only four forms being required and the general direction being provided by one production supervisor and three assistants for the system.

The purpose of the production system is to increase unit shop production without the overhead expense involved in handling work under a bonus system. Shop supervisors know at a glance how long detailed repair operations are taking compared to what can be done. Shop men are specialized to as great an extent as practical and provided with the tools, working conditions and facilities needed for most efficient operation. Moreover, a knowledge of what is being accomplished by other men in the same shops or by other shops on the system creates a feeling of friendly rivalry in the development of improved methods and labor-saving devices. Emphasis is placed on a high standard of workmanship which is the first consideration.

When this system was first inaugurated it was found

that some supervisors had little accurate knowledge of the man-hours required for various operations performed under their direction and in their departments and in many cases two men were assigned to do one man's work. Supervisors are now careful to study and assign jobs to men who are best adapted to the respective classes of work and they also see that on jobs requiring more than one man, only the number of men required to perform the work with safety and efficiency are used.

Trends in Train Speed, Tractive Force and Unit Locomotive Maintenance Cost on the Union Pacific

Year	Average train speed (m.p.h.) Passenger	Freight	Average tractive force (lb.)	Maintenance cost per locomotive-mile (cents)
1924	34.12	15.37	46,523	29.06
1925	34.40	15.90	47,290	27.48
1926	35.03	16.45	49,162	27.60
1927	36.16	16.88	49,684	24.99
1928	36.59	17.23	51,343	25.12
1929	38.05	17.84	53,747	24.48
1930	38.74	18.68	54,840	24.95

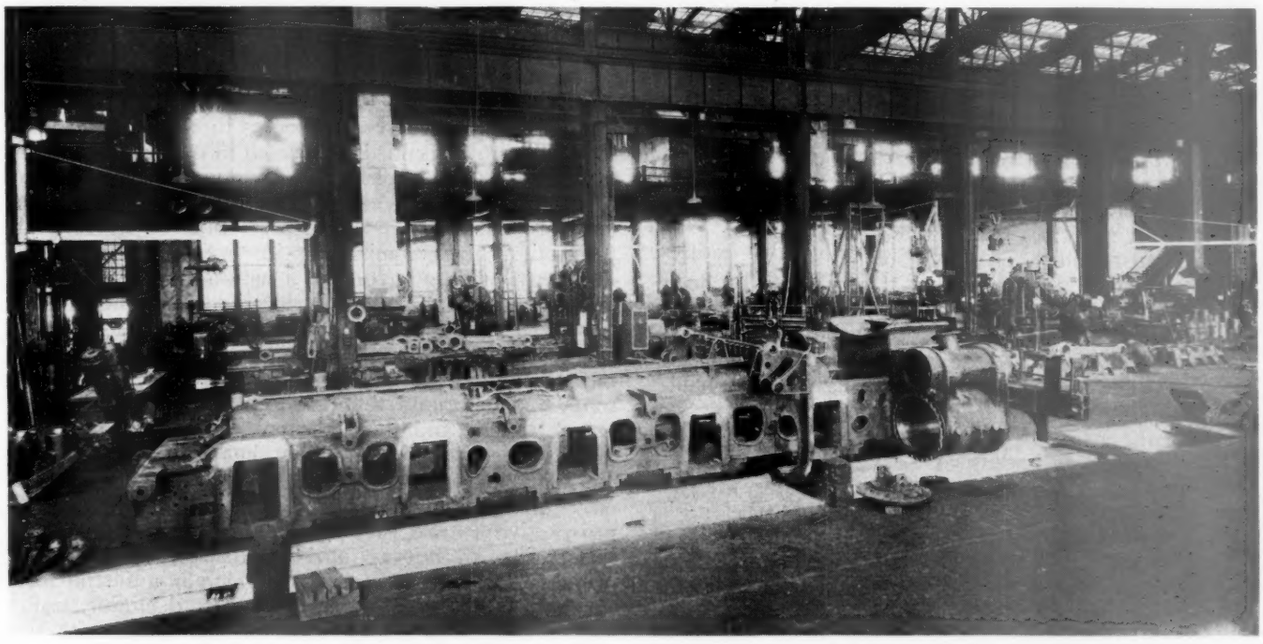
The locomotive maintenance work is divided into seven departments, including the boiler, machine, erecting, blacksmith, pipe and jacket, electric, and miscellaneous departments, each of which has an over-all assignment of schedule man-hours for ten individual classes of locomotives. In addition, the detailed maintenance operations are divided into groups numbered from 10 to 99 and including approximately 7,000 jobs for each of the ten classes of power.

Comparison of Present and Former Monthly Locomotive Mileage and Mileage Between General Repairs

Type	Locomotive-miles per month 1931	Prior to 1929	Miles between general repairs 1931	Prior to 1929
Heavy Pacific	9,210	8,300	211,000	165,000
Mountain	7,700	7,200	226,000	180,000
Consolidation	2,550	2,100	76,000	60,000
Mikado	4,450	4,000	89,000	60,000
Mallet	3,870	3,300	93,000	40,000
2-10-2	5,800	5,300	98,000	75,000
4-12-2	6,500	6,200	152,000	125,000

The four forms mentioned include a work order and individual job check filled out by the foreman, one form on which information from the individual job check forms is consolidated, another form which gives the comparative performance of individual units of the Union Pacific System, and a mimeographed statement issued periodically showing the best average time for individual operations at all shop points. In this way, an unusually good performance on any particular job is quickly called to the attention of all system shops and, if due to improved equipment or methods, these can be adapted as generally as practicable.

Experience on the Union Pacific has shown that this system makes work lighter and easier both for the workmen and the supervisors, and desired improvement is effected more often by the use of proper methods and tools, coupled with the elimination of lost time, than by speeding up men and machines. In other words, the entire system is designed to offer an inducement for supervisors and men to use their heads and produce as good an output as possible with a reasonable expenditure of physical effort.



A Locomotive Bed Casting with Integral Cylinders Ready for Application of the Boiler at Omaha Shops

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THE LONG ISLAND, which in the month of March operated over 27,000 regular passenger trains, reports that for the first 26 days of the month not a single train was late; and the record for the month was 99.9 per cent on time. In addition, over 2,500 non-scheduled trains were run.

THE BALTIMORE AND OHIO has notified the Public Service Commission of Maryland that nine stations in that state have been reduced to non-agency passenger stations; arrangements for delivery of carload freight being provided in some cases under the supervision of agents at adjacent stations. The stations to be reclassified are Breatheds, Hanover, Brentwood, Derwood, Hoods Mill, Morgan, Weverton, Gapland and Rohrersville.

I. C. C. Finds "Commercial Value"

WASHINGTON, D. C.

AFTER struggling for years with the problem of making physical valuations of railroad property for rate-making and recapture purposes the Interstate Commerce Commission has recently had occasion to find the "commercial value" of a railroad, and apparently it has found it a task no easier than that on which it has heretofore been engaged. The case is that of the Ulster & Delaware, one of the short lines which the commission required the New York Central to offer to acquire at their commercial value as a condition of its authorization of the lease of the Big Four and Michigan Central which was effected last year.

By a six to five decision the commission has placed the commercial value of this 128-mile property at $2,500,000, after setting aside as erroneous the findings of two members of a board of arbitration who had found the commercial value to the New York Central to be $4,100,000. The New York Central had offered $1,500,000 for the property, and had later asked the commission to approve its acquisition for $1,813,333, the figure which James H. Hustis, the arbitrator it had chosen, had found to be the commercial value, taking into consideration some of the economies which might result from unification with the Central system. The commission found that W. W. Colpitts and W. S. Kinnear had erred in holding that the value to be determined was the commercial value to the New York Central and that the award of the arbitrators was advisory only, inasmuch as the commission could not delegate the function of finally determining the reasonableness of conditions of unification committed to it by Section 5 of the interstate commerce act.

After stating its finding of $2,500,000, however, the commission said that if accepted by the Ulster, the payment of that amount would result in its receiving a substantial portion of the financial benefits resulting from the unification of its properties with those of the Central. On the other hand, the commission said, the acquisition at the price mentioned would be in the public interest because the Central's advantage would be served thereby and the logical probable result would be the elimination of an undesirable rate adjustment and a considerable reduction of rates.

The Ulster had presented testimony that the commercial value of its property was from $5,000,000 to $7,000,000 and that the original cost was not less than $8,000,000. It had insisted that the commission should accept the finding of the majority of the arbitrators. The commission's decision was reached by a bare majority, for five of its members dissented for various reasons and Commissioner Aitchison concurred only in the result.

The decision is of particular interest because as the railroad consolidation program develops there will be many short lines to be acquired by larger roads, and although the short lines generally have taken the position that they should be taken over on the basis of the commission's valuation the decision in the New York Central unification case is taken as a precedent in favor of the commercial basis. For this reason Commissioner Mahaffie wrote a vigorous dissenting opinion, concurred in by Commissioners Lee and Porter, saying that "the principle that the owners of railroads are entitled to be paid, not only for their property as such, but for the public benefit growing out of their elimination as owners, is novel." "If applied generally," he said, "it will have an important effect on the prices at which unification or consolidation can be effected."

Commissioner Eastman dissented on the basis of his usual contention that such a unification amounts to a consolidation. He said he would not have dissented on the ground of the finding alone, "although it resolves a good many doubts rather favorably to the Ulster." Commissioner McManamy dissented on the ground that the award of the arbitrators should be approved.

The value fixed is more than twice a capitalization at 5.75 per cent of the company's net railway operating income, after certain readjustments for possible increase in traffic for the future, in the face of a rather steady decline in the past, exceeding its actual net for the year 1928, which was its best year in recent times, and more than twice its average for the five-year period ending with 1930, in which year the company had a deficit. No dividends have been paid in recent years. In making its own finding the commission took as extremes a figure of $1,182,000, arrived at by capitalizing at 5.75 per cent the adjusted figure for net railway operating income under independent operation, and one of $3,385,000, arrived at by capitalizing at the same rate the net which it was estimated the Central could earn from operating the Ulster as part of its system. "Taking into consideration the several elements disclosed by the evidence but not specifically reflected in either of the foregoing amounts, and particularly the market value of the Ulster's capital obligations, and the original cost and cost of reproduction less depreciation of its railroad properties," the commission said, "it is probable that as between a willing buyer and a willing seller such properties would command a price somewhat nearer the latter than the former figure."

Commissioner Mahaffie, pointing out that the Central is an unwilling purchaser, said that $1,813,333 represents the maximum that it should be required, or allowed, to pay and that "the cost of such acquisitions must of necessity be paid by the public. It is very much our concern." He said that the majority are not only fully capitalizing actual earnings but are requiring prospective future earnings, in his judgement highly speculative, to be capitalized and paid for. "For a property located in a territory which is a fertile field for bus and truck competition, with declining traffic and revenue, with highly seasonal traffic, and with adverse and expensive operating conditions," he said, "the highest income earned in any year in recent times appears to afford a basis for arriving at value which is at least not unfair to the Ulster." He also questioned the use of 5.75 per cent in capitalizing the net, saying that while the commission has said that 5.75 per cent is a fair return on carrier property, "few railroads make it and still fewer would find their commercial value related to any such figure.

"Finding the value of the property under independent operation to be $1,182,000, the majority, after considering various possible increases in earnings and economies expected to result from unification with the Central, arrive at a commercial value of $2,500,000," he said. "Thus, the savings it is considered the Central may make in operating the property when it has acquired it, and the increased traffic that may develop as a result of its management, are appraised at a capital sum of $1,318,000. The Central is required to pay this amount to the owners of the property, in addition to the $1,182,000 the property is found to be worth to those owners, as such.

"As I view the record this additional $1,318,000 will be paid by the Central for something it is not likely to realize. There is no doubt that the Central, if it ac-

(Continued on page 1190)

Seek 15 Per Cent Rate Increase

Roads unanimous in view that emergency action on freight tariffs is needed—Measure temporary, later remedial steps suggested

CONFRONTED with an emergency threatening serious impairment of their financial resources and "their capacity to assure the public a continuance of efficient and adequate service," the railroads of the United States unanimously petitioned the Interstate Commerce Commission on June 17 for a 15 per cent increase in all freight rates and charges. Even with such increased revenues, it is estimated, the carriers will earn less than 4 per cent this year on the value of their property, a return "much below the return prescribed by law."

The petition was signed by J. J. Pelley, chairman of the special committee of presidents representing the Eastern Group; H. A. Scandrett, chairman, special committee of presidents, representing the Western and Mountain-Pacific Groups; and W. R. Coje, chairman of the Southern Group.

2½ Billions Short of "Fair Return"

Despite efficient and economical management, the brief emphasizes, earnings of the Class I carriers since 1921 are about $2,575,000,000 below the fair return of 5¾ per cent prescribed by law.

The railroads are now being forced to operate under drastic economies, resulting in deferred maintenance in their properties "which must sometime be made up," says the petition, adding: "Steam railway transportation has not become a moribund enterprise. It is essential to the economic welfare of the country and indispensable to the national defense. All that is necessary to the maintenance of an adequate national system of transportation is that the country should be willing to pay a reasonable price for it and that railway investors and railway managements should be able to act on that assurance."

Continued Policy of Normal Spending

The petition asserts that the railroads adhered to their policy—announced publicly during the latter part of 1929—of continuing a normal program of expenditures "as long as it could be justified from the standpoint of the trust reposed by the railroad security holders in the managements of the carriers who were administering property which, though devoted to public use, is nevertheless private property. That this policy was adhered to is shown by the fact that during the year 1930, in a period of declining traffic, these carriers made capital expenditures amounting to approximately $598,000,000. They also continued in employment wage-earners whose services were not indispensably necessary to the transaction of the volume of business which was offered for transportation, thereby incurring operating expenses which might have been substantially diminished by a program of severe economy."

The application of the railways reviews in detail the other reasons which dictated the filing of the petition, including the determination of the executives not to consider the matter of wages at this time. Such negotiations, says the petition, could not be concluded in time to meet the present emergency. "They have concluded that if that question must be met and dealt with, it must be at a later stage," says the brief.

"In view of these considerations," it explains, "the carriers propose that they be permitted to increase all freight rates and charges, including joint rail and water rates and charges, 15 per cent, with such adjustments in the case of coal, coke and certain other commodities as will preserve existing differentials; that as to freight traffic, generally, this increase be permitted to become effective by the use of percentage supplements; that as to coal, coke and certain other commodities, specific tariffs complying with the ordinary requirements of tariff publication be filed."

Pointing out that the proposed rates will yield the carriers a net railway operating income, on an annual basis, less than 4 per cent on the value of their property, the petition says: "Since this rate of return will be much below the return prescribed by law, the case presented does not appear to be one for the determination of maximum reasonable rates by the Commission. It is obvious that as a revenue proposal the Commission could not find any of the proposed rates to be in excess of maximum reasonable rates. If the existing emergency has been made clear to the Commission, time does not permit the exercise of the power to determine, otherwise than from a revenue standpoint, the reasonableness of the proposed schedules of rates and charges as a condition precedent to permitting them to become effective.

Urge Investigation Be Limited

"Accordingly, the carriers recommend that the investigation to be made by the Commission upon this statement and application should be of a limited character and should be for the purpose of reaching a determination as to whether or not the general schedules of rates and charges proposed should be permitted to become effective without suspension. Such a determination obviously calls for no decision concerning the ultimate reasonableness of the rates proposed."

Stressing the necessity of increasing the revenues of the railroads, the brief points out clearly the danger of an impaired credit position. Emphasis is placed upon the importance of maintaining the relationship of income to fixed charges so as to insure railway securities as legal investments for insurance companies, savings banks and trusts. This relationship, the brief says, "has become an investment standard by which the value of railway bonds in all markets is affected."

The conditions which have made possible the maintenance of a stable railway credit, under present conditions, while well understood by the Commission, it is explained, are "perhaps not well understood by the public, or even by investors in railway securities." The petition analyzes this point as follows:

How Credit Was Maintained

"The facts are that a large amount of funded debt has been outstanding at rates of interest less than 5¾ per cent and that a large amount of the property of the carriers has been in the form of uncapitalized assets. To the extent of the income produced by the difference between the low interest rates on a part of the existing debt and the higher return on the capital represented by

that debt, and to the extent of the income derived from the uncapitalized assets, marginal earnings have been produced which have essentially contributed to the support of outstanding securities.

"Some debt, incurred many years ago, is now outstanding at interest rates as low at 3½ and 4 per cent, and some debt which has been outstanding at such rates has recently been refunded at higher rates. The uncapitalized assets, created by the conservative policies of former years, cannot be increased without adequate return and must gradually become a smaller percentage of the total railway capital if that capital is to be increased. A substantial amount of capital is absorbed each year by improvements required by law or public opinion. Some of these improvements produce little or no return on investment and others produce less than the average return.

"Under such conditions, the ability of the carriers, especially those having very conservative capital structures, in recent years, not only to earn fixed charges but also substantial returns on capital stock does not give a true impression of the earnings of railway property or of the stability, under present conditions, of railway credit."

No Excess Earnings in Prosperous Years

"If the carriers were permitted," the petition goes on to say, "to participate in periods of prosperity equally with other business, they should equally sacrifice in periods of adversity. But they are denied such participation by law. Even in periods of prosperity the return on railway capital has been meagre and inadequate as shown by the statistics of net railway operating income and its percentage of the value of railway property.

"During the recent period of great prosperity, when industry was reaping unprecedented rewards, the carriers contributed a service indispensable to the creation of this prosperity. The compensation for this service offered by law has been a return on capital only slightly exceeding the rate of interest which the ordinary investor receives when he invests in well secured obligations. This has been the upper limit of the reward of risk of railway capital and of efficiency of railway management."

"Obligation" to Preserve Property

"The theory of the law is that railway property is private property affected with a public use; that in being devoted to such use it foregoes exceptional opportunity for the assurance of fair return. If the sacrifice already made under conditions of prosperity is to be greatly enlarged because of conditions of adversity, the result is that railway property has become public property affected with a private obligation to maintain it. It can not be expected that investors in railway securities will assume and perform such an obligation."

Motor Truck Competition

The petition discusses the competition of motor trucks at some length, saying that at present this competition is, for the most part, limited to from 150 to 200 miles. "The rate structure of the steam carriers," it goes on to say, "is particularly wanting in that flexibility which would enable them to meet this competition. The practice of the steam carriers has always been to make the rates relatively higher for short distances . . . . . The rate scales which have been established by the Commission proceed upon the same theory. Section 4 of the Interstate Commerce Act provides that excepting as the Commission may relieve the carriers from the operation of the rule, they shall not 'charge any greater compensation as a through rate than the aggregate of intermediate rates subject to the provisions of this Act.' It is becoming probable that the rule of rate making hereafter should be precisely the opposite of this requirement if the steam carriers are to continue in a competitive position with respect to short haul transportation. It is probable that short haul traffic should be treated somewhat as a by-product and that for the shorter distances the rates should be relatively lower and for the longer distances where the motor truck competition is not effective they should be relatively higher."

The petition further discusses the complexity of the competitive situation, suggesting that the present classification of commodities may have to be drastically modified. It points out that trucks base their charges largely upon the basis of space occupied, leaving out of account the value of the article, weight compared with bulk, etc., and other factors which enter so importantly into railroad classification. The working out of a rate structure to meet these conditions, however, it is stated, will be a lengthy process and can not be looked to to meet the present emergency situation.

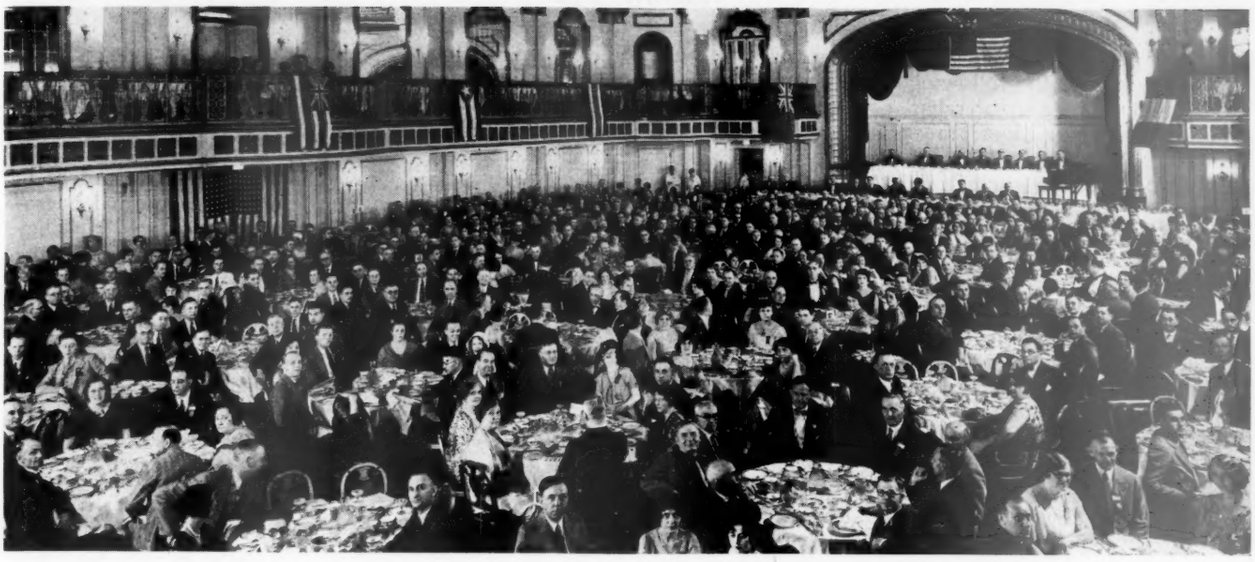
The prospect of securing any increase in revenues by an increase in passenger rates is dismissed, due to the great falling off of business already experienced on the present basis of rates. On the other hand it is not believed that a reduction in passenger rates would bring enough new business to increase net railway operating income. A reduction in the standard rate from 3.6 cents a mile to 3 cents a mile would result in a decline of 16⅔ per cent in net railway operating income derived from standard fares. Such a reduction carried to all railroad fares except commutation, on the basis of 1930 revenues, would amount to $109,300,000.

Commission Promises Prompt Consideration

The rate petition was received by the commission Wednesday morning and given the number 24,520 on the commission's docket. Chairman Brainerd announced that as soon as the commissioners had had an opportunity to study it prompt consideration would be given to the matter and that a plan of procedure would be announced as soon as possible. No conference on the subject was held on Wednesday.

While the commission on many occasions has indicated its strong opposition to the idea of increasing rates by the horizontal percentage method its record shows that that method has been finally resorted to on several occasions when the existence of an emergency became sufficiently well recognized. In 1911 the commission denied the first applications ever made to it by the railroads for general advances in rates, but those cases were not based specifically on percentages. Then followed the proposal of the roads for a five per cent increase in Central Freight Association territory, which was first denied but later granted in 1914. In 1917 the roads generally applied for authority for a general 15 per cent increase, which the commission denied after a very brief general hearing, although it allowed some specific increases. Later it re-opened the case and allowed a large part of the increases asked but the decision was not announced until after the government had taken over the railroads for the war period and the Director General found it necessary to make a 25 per cent general advance. In 1920, after the roads had been returned by the government without any net operating income but with a guarantee limited to six months, the commission

(*Continued on page 1212*)



The Joint Dinner of the Members of the Superintendents' Association and the St. Louis Traffic Club

Superintendents Meet in St. Louis

Convention characterized by more carefully prepared reports and more active discussion—Attendance reduced

Part I

APPROXIMATELY 215 members of the American Association of Railroad Superintendents met in the 38th annual convention of this organization at St. Louis, Mo., on June 9-12. Although this attendance was less than normal, reflecting the stress under which the railways are now operating, the excellent character of many of the reports, the activity of much of the discussion and the diligence with which those present adhered to work made the meeting one of the most constructive in recent years. The program embraced reports of committees on some 22 subjects and 6 addresses by specialists in operating problems. In addition, the annual dinner, which was held jointly with the Traffic Club of St. Louis on Wednesday evening, was addressed by Samuel O. Dunn, editor of the *Railway Age*. Abstracts of several of the addresses and reports appear below, while more extended abstracts of other reports will appear in succeeding issues.

The convention was presided over by C. E. Brower, president (general superintendent of transportation, A. B. & C.), assisted by A. G. Peck, acting secretary-treasurer (general agent, M.-K.-T., Kansas City, Mo.). Shortly after calling the convention to order, Mr. Brower reviewed the work of the organization during the past year. Among other activities, he reported the appointment of a committee, at the request of the Freight Claim division of the American Railway Association, to work with a similar committee from that organization in the interest of claim prevention. He also urged the appointment of a committee to work out the details of a plan for benefit or group insurance.

Secretary Peck reported the election of 237 new members last year, making good the losses due to all causes and leaving a total membership approximating 2400. The financial status was equally satisfactory.

The association adopted a resolution presented by G. Brophy (U. P.) opposing the construction of waterways at public expense and also opposing the monopolization of the highways by buses and trucks which offer a selective traffic service only. The resolution opposed the expenditure of public funds for the construction of these traffic ways, urged legislation to regulate the use of highways by bus and truck and opposed the government itself entering the transportation field.

At the closing session on Friday forenoon, the following officers were selected for the ensuing year: President, C. Forrester, general superintendent, C. N. R., Saskatoon, Sask.; first vice-president, Victor Parvin, general superintendent, Wabash, St. Louis, Mo.; second vice-president, F. O. Coleman, superintendent, M. & St. L., Oskaloosa, Iowa.; fourth vice-president, C. I. Luque, superintendent of transportation, Mexican Ry., Mexico, D. F.; secretary-treasurer, F. O. Whiteman, St. Louis, Mo. Directors (one year): B. Mendez, chief, instruction department, Nat. Rys. Mex., Mexico, D. F.; W. H. Blake, superintendent, S. A. L., Tampa, Fla.; (two years): Elmer T. Howson, western editor, *Railway Age*, Chicago; F. E. Summers, superintendent, A. T. & S. F., Emporia, Kan.; (three years): J. D. Bell, superintendent terminals, N. Y. C.-C. C. C. & St. L., Cleveland, Ohio, S. Cameron, superintendent freight transportation, Monongehela, Brownsville, Pa. Detroit was selected as the location for the next convention.

Among the reports and papers which were presented

at the convention and which will be abstracted in succeeding issues were the following:

The Committee on Interchange Car Inspection reported on yard air lines, the triple-crewing of yard locomotives and the avoidance of delays to transfer locomotives in interchange. The committee on Car Retarder Operation reported on the economies which it is possible to effect through the use of hump yards and car retarders, especially for yards handling from 400 to 700 cars per day.

G. J. Shreeve, general superintendent, Belt Railway of Chicago, presented a paper describing the results derived from the elimination of interchange car inspection in the Clearing yard at Chicago. B. H. Mann, special engineer, Missouri Pacific, St. Louis, Mo., presented a method of analysis of freight train operation on an engine district, and showed the results possible from such analysis.

A committee assigned to investigate means for encouraging the solicitation of business by operating department employees reported on various expedients by which this result could be attained. The Committee on Car Loading presented an unusually complete report on the heavier loading of cars, methods of inducing consignees to unload and clean cars thoroughly and car service rules. A committee composed of trainmasters presented an interesting report on methods of conducting efficiency tests and of means of educating employees regarding train service rules.

The Committee on Fuel Conservation presented an exhaustive report on practical means which operating officers can take to reduce fuel consumption. A committee composed of chief dispatchers outlined the work of the dispatcher and set forth ways in which he can promote efficiency and reduce loss by proper handling of trains.

The handling of merchandise was reported on by a committee which considered the subject from the standpoint of (a) Local way freight service from the loading point or distributing center, (b) territory beyond this limit which can be served by merchandise or time freight trains in time for early morning delivery, and (c) areas beyond the possibility of next-morning delivery.

Highway and air competition were reported on at length by a special committee which developed particularly the necessity for railways broadening the scope of their activities. The report also presented detailed figures showing the inadequacy of the present taxation of highway vehicles. The duties of a division superintendent were set forth in detail in the report of another committee which indicated the responsibilities of this officer in transportation matters.

All the reports here mentioned will be presented in abstract in succeeding issues.

Freight Claim Prevention

Joe Marshall, special representative, freight claim division, A. R. A., addressed the convention on Thursday. He urged each superintendent to develop a calendar of peak traffic movements in order that he might anticipate these peaks, for experience has shown that the largest number of claims originate in the early stages of these movements, before the employees are educated fully as to their handling. He illustrated the magnitude of the loss and damage account by stating that on many roads it exceeds the entire cost of off-line agencies.

Mr. Marshall urged the superintendents to bring into their freight claim meetings air brake men, rules examiners, traffic men, etc., in order to secure the widest possible appreciation of the importance of this problem and to enlist the co-operation of every employee with influence in its solution. In this connection Mr. Marshall emphasized the value of models and exhibits as means of educating employees in the results of rough handling.

One road, he said, now has 200 impact recorders in regular use, a sufficient number to show normal operation. If the railways can reduce rough handling they may be able to build lighter cars and thereby reduce the dead weight. The roads are constantly removing one cause of damage claims after another until now more active efforts are being made to educate shippers and stimulate better loading on their part.

Three Safety Addresses

A feature of the program was the appearance of three safety men. Harry Guilbert, supervisor of safety for the Pullman Company spoke on Tuesday afternoon on the safety record made by the railways in the transportation of passengers in 1930 and then described in some detail the methods employed by the Pullman Company, whereby the number of accidents to the employees in shops and elsewhere have been reduced 60 per cent.

L. G. Bentley Spoke

L. G. Bentley, general safety agent of the Chesapeake & Ohio, spoke of some of the opportunities and responsibilities of the superintendent in accident prevention work. He insisted that safety is no longer a matter of sentiment to be sought by appeal but simply a feature of good railroading that must be demanded of all concerned. Such demands being established on reasonable safety rules, rigidly enforced.

A special recommendation that safety rules be enforced before rather than after a man is hurt was driven home with force by Mr. Bentley in quoting president L. A. Downs of the Illinois Central who has said that to punish a man for continued violation of a rule after an accident happens is in fact to discipline him for the results of his act, rather than for the act itself.

The superintendents were urged to take over the personal investigation of all personal injury accidents, as in no other way can they possibly get and remain in as close touch with these matters as they must be to reduce them effectively. In this convention the speaker insisted that the prompt investigation of a personal injury accident is of infinitely more importance than the investigation of a small fire or a broken drawhead, both of which now usually have preference in the time-established belief that the personal injury can wait until a more convenient time. Some of the practical safety measures recommended by Mr. Bentley are:

Surprise tests and appropriate action to find out just what unsafe acts are being committed.

The use of carefully arranged safety contests between departments and divisions.

Printed safety rules and complete examination therein, the same as operating rules.

Assumption by the superintendent of responsibility for the accuracy of reports made to the Interstate Commerce Commission.

In case of fatal or serious employee injury the ranking officer in charge shall be the one to notify his family.

In support of his contentions that safety work is simply good business, Mr. Bentley quoted from the annual report to the Board of Directors of the A. C. L. Ry. for 1930 as follows:

The economic value of safety to the employees needs no explanation. The total payments by your company

to all persons injured during the 10-year period ended December 31, 1930, amounted to $6,076,804, or an average of $607,680 per annum; while the total amount paid during the year 1930 was $287,278 or 52.7 per cent below the 10-year average. This saving was the result of fewer and less serious injuries, and was accompanied by a corresponding reduction in damage loss to physical properties.

H. A. Rowe Addressed the Meeting

The third address on safety was presented by H. A. Rowe, claims attorney, D. L. & W. and chairman of the Safety Section, A.R.A., in which he traced the history of the development of the safety movement during the century of railway transportation concluding with the results secured in the seven-year campaign ending with 1930. Speaking directly to superintendents, he stated that the most common cause of casualties in the transportation department is that comprised in "Struck and run over by trains." Accidents of this class have been reduced as much as 50 per cent in a single year, which, he contended, demonstrated that they can be eliminated entirely if sufficient effort is made.

The most difficult accidents to eliminate are in the transportation department, due to the inherent hazard of its work. Another reason for the difficulty in eliminating accidents in this department is due, he stated, to the fact that many operating officers do not think sufficiently of safety. He urged that they prepare rules for the insurance of safety in the same detail as have been developed for transportation and that these rules be enforced with the same rigidity as operating rules are now enforced. He cautioned the superintendents that they must themselves practice safety by precept and example if they are to expect the same attitude from their employees. He concluded his address with the remark that safety pays, supporting this conclusion with the statement that the roads would have expended over $130,000,000 more than they actually did spend since 1923, if they had not effected the reduction in accidents that was realized, while the saving in 1930 alone exceeded $20,000,000.

Train Rules

The committee on train rules, of which S. H. Shults, chief train rules examiner, C. B. & Q., Galesburg, Ill., was chairman, recommended that each railroad adopt the basic rules of the A.R.A. standard code of operating rules, instead of modifying or changing them, because they provide all the basic regulations which are considered necessary for the proper and safe operation of trains. Aside from special rules governing local conditions, which would be covered in individual timetables, it was felt that adoption of the basic rules of the standard code of the American Railway Association would be very helpful to engine and train crews which operate over more than one railroad.

The committee, in its report, recommended that the last paragraph of Rule 85, governing the movement of one section of a train when it passes and runs ahead of another section of the same schedule, should not be changed. It also recommended that there be no change in the first and third paragraphs of Rule S-90 which have to do with the stopping of trains at scheduled meeting points, and in Rule 94 which governs the movement of a train which overtakes a disabled train.

The committee recommended that the green signal rules should not be eliminated and that a red light for stop, a yellow light for restricted speed and a green light for proceed should be maintained.

It was also felt that trains should be operated over double track in either direction to permit their best movement. The committee pointed out that the standard code provides the D-R form of train order for movement against the current of traffic where there are no block signals, and Rules D-261, D-262, D-263 and D-264 for movement against the current of traffic on two or more tracks by block signals.

In the discussion of this report, a question was asked regarding the extent to which roads require the crews of freight trains to exchange signals as they meet or pass. In reply, representatives of several roads advised that they require head brakemen to ride the locomotives and, where practicable, to exchange signals, but recognize that this is not practicable in all cases.

Dynamometer Cars—Axle Capacity

A special committee of engineers, of which R. A. Black, engineer of transportation, C. N. R., Montreal, Que., was chairman was requested to report on the practicability of adding dynamometer equipment to air-brake instruction cars. The committee reported against this practice, pointing out that an air brake instruction car is usually rebuilt from an obsolete passenger car, and is not designed to withstand the severe strains and heavy shocks to which a dynamometer car must be subjected. The committee stated further that the purposes for which these cars are equipped are so different in character that there would be slight advantage in combining the features of both in one car. The committee felt that a railway of short mileage would find it cheaper to rent a dynamometer car than maintain one for its own use.

The committee was also requested to report on ways of educating employees as to the meaning of axle capacity. It reported that the only employees who are necessarily concerned with the meaning of the term "axle capacity" are those of the car department. The term "axle capacity" is defined in the Code of Rules of the American Railway Association and the committee felt that further attempts to educate employees as to the meaning of the term are neither desirable nor necessary in the interests of safe and efficient railway operation.

Discussion

This report aroused considerable discussion, with reference especially to the action on the second question, C. Forrester (C. N. R.) defended the committee, stating that his road has found it sufficient to stencil the capacity and load limit line on all cars. He opposed giving employees further and more technical information. A. P. Stevens (A. R. A.) replied that many roads do not so stencil their cars and that many agents and other interested employees are not sufficiently informed as to car capacities. M. L. Hayes (M. P.) advised that it is the practice on his road to restencil all cars as they go over the repair tracks and that as a further precaution, copies of the A.R.A. rules on the axle capacity of cars are distributed to all agents at intervals of three to four months.

Duplicate Transportation Agencies Increase Cost

In an address before the joint annual dinner of the Superintendents Association and the Traffic Club of St. Louis, Samuel O. Dunn, editor of the *Railway Age*, emphasized the increase in the total ultimate cost to the

public that necessarily follows the duplication of transportation agencies. He spoke in part as follows:

The railroads are in a financial condition that is forcing their managers to seek advances in freight rates during the present depression principally because of government policies that have reduced their earning capacity, and, at the same time, have unnecessarily increased the total amount the American people must pay for their total transportation service. The railways have carried 60 per cent more freight, and probably could carry 100 per cent more, than they are carrying now. They have also handled almost 100 per cent more passenger business. Even in 1929, when business was good, they were operating at much less than their capacity, and they are operating now at only about 50 per cent of their capacity, partly owing to the depression and partly owing to the diversion of traffic from them to highways and waterways.

Spokesmen of the railways repeatedly have pointed out within recent years that if our national and state governments persisted in pursuing policies that would divert traffic to other carriers they would make it necessary to advance rates on the traffic left to the railways, and this prediction has now been fulfilled. In addition to the traffic they are moving, the railways could handle at only a comparatively small increased operating cost all the traffic that government policies of subsidy and regulation have diverted from them to the Panama canal, to inland waterways and to the highways, and if they had this traffic they probably could pass through the present depression without seeking an advance in rates to prevent the financial disaster toward which many railways are heading. These government policies have resulted in a huge duplication and over-production of means of transportation, owing to which the railways are operating farther below their capacity than ever before in history, and, in consequence, in spite of the most drastic retrenchments, apparently cannot weather the present storm without either an advance of rates or a reduction of wages.

The situation should bring the American public, and especially business men, to a realization of one vital fact. This is, that any temporary savings in freight rates they may make by using subsidized and unregulated means of transportation are wholly unimportant, compared with keeping down the total cost of transporting our entire commerce. Shippers and their traffic managers who do not consider our national transportation problem as a whole think they gain by using water and highway carriers that are able to make lower rates than the railways because they are virtually unregulated and are subsidized by the taxpayers. In the long run, however, as experience is showing, the resulting diversion of traffic from the railways forces them to seek higher rates on the traffic they have left. Then industry and commerce are confronted with both higher rates and higher taxes to pay total transportation costs—higher rates to support the railways, and higher taxes to provide the subsidies for water and highway transportation.

Increase in the regulation of highway and water carriers, and increases in the charges for their use of the highways and waterways are opposed, upon the ground that the public would be thereby deprived of more efficient and economical transportation than can be rendered by the railways. Obviously, however, if transportation by highway and waterway actually is more economical than by railway, carriers for hire can afford to pay enough for the use of the highways and waterways completely to reimburse the taxpayers for the expenditures made to enable them to render their service, and can also hold their own under regulation comparable to that applied to the railways. If these other carriers cannot compete successfully with the railways under government policies similar to those applied to the railways, it necessarily follows that they cannot furnish transportation as economically and efficiently as the railways.

The tax and transportation problems are two of the most important problems confronting the American people. The enormous increase in taxes within recent years and the present financial situation of the railways are two of the most important causes of the deepening and prolongation of the depression. Present government policies regarding transportation are increasing the total cost of transportation that the public must bear, both by increasing taxes and by forcing the railways to seek advances in freight rates. They are also reviving unfair discriminations in transportation service and rates by allowing other carriers to use competitive methods which the Act to Regulate Commerce was originally passed mainly to prohibit the railways from using.

What the public interest demands is sound economic co-ordination of different means of transportation, not wasteful duplication and competition. The acid test of the economic value to the public of each means of transportation will be the traffic it can get under a government policy which forces it to pay all the costs of providing its service out of its own earnings, to bear reasonable regulation, and to fix its rates accordingly. The adoption of government policies under which carriers by water, highway and railway were all treated equally as respects subsidization and regulation would, in a comparatively short time, determine the field in which each class of carriers could serve the most economically and efficiently, and reduce the total cost of handling all commerce to the practicable minimum. Present government policies stimulate duplication of service, increase the total amount that the public must pay for transportation in both taxes and rates, and threaten to break down, both financially and physically, the railroads, which must be relied upon indefinitely to perform the great bulk of the country's transportation service.

I. C. C. Finds "Commercial Value"

(Continued from page 1184)

quires the property, will have to reduce rates, both milk and passenger, as well as freight. These reductions, according to the majority, will reduce net railway operating income $236,474. The record indicates that it is quite possible the Central will lose a substantial part, if not all, of the coal traffic now handled by the Ulster. Coal constitutes over two-thirds of the Ulster's freight tonnage and, in the main, can readily be handled by other lines.

"Altogether, I consider it doubtful if the economies of unification, in actual experience, will be found to equal the certain expenses and losses in revenue involved. Certainly, whatever possibilities there are of realizing increased net revenue as a result of unification, appear to be fully covered by the difference between the value to the owners as found by the majority, and the price the Central offers. This amounts to $631,333."

Laying Rails by Heats

By H. H. Morgan*

IF rails were laid in track so that all of a heat were together, there would be many advantages over the present system whereby rails of a heat are sometimes scattered for hundreds of miles along the railroad and on different divisions. There is less variation in chemistry, hardness, and section between rails of the same heat than between those of different heats so that track laid with the rails from each heat together would have better joints to start with and joints less subject to batter because of the better matching of section and the equal hardness of the adjacent rail ends. The economy of this is difficult to evaluate but it is certainly great.

Other economies result from such a practice. For illustration, when the rails of a heat must be watched on account of failures and the rails are widely distributed, each roadmaster must be notified whether any of these rails are in his territory and he in turn must locate those rails and give them special attention. On the other hand, if the rails were all in one location, it would be a much simpler matter to watch them and to do this more thoroughly than is now possible.

An even greater economy is effected when it becomes necessary to remove the rails of a heat from track. When they are scattered, the replacement rails must be distributed sometimes for hundreds of miles, section men must be concentrated at a number of points and when the replacement rails are installed they are found to be higher than the worn rails taken out, with the result that the joints ride rough and batter excessively. When the rails of a heat are laid in one stretch, it is not only much cheaper to replace them but the replacement rails are all together, reducing the number of joints between new and worn rail.

With the mills loading the rails as they are now, it is impractical for a railroad to lay the rails of a heat together but it would be practical if the rails were loaded by heats. Under the present A.R.E.A. specifications, each class of rail must be loaded in separate cars, which eliminates the possibility of loading any but the No. 1 full length rails by heats, the quantity of the other classes being too small to permit separate loading. Ordinarily, No. 2, X-rayls, and "A" rails are not laid in the same track with full length No. 1 rails so that there would appear to be little advantage in attempting to load these special rails by heats other than the No. 1 short rails which are often laid with the full length No. 1 rails. The only barrier to this practice is the specifications which require them to be loaded separately.

It has been found practical to load full length No. 1 rails by heats by marking all the rails of a heat with a distinctive number or letter while on the hot beds, and then distributing them for drilling, straightening and inspection so that they are grouped together on the loading dock. The rails to be restraightened or milled are handled immediately and returned to their proper place. Rails to be cut to short rails can be handled in the same way.

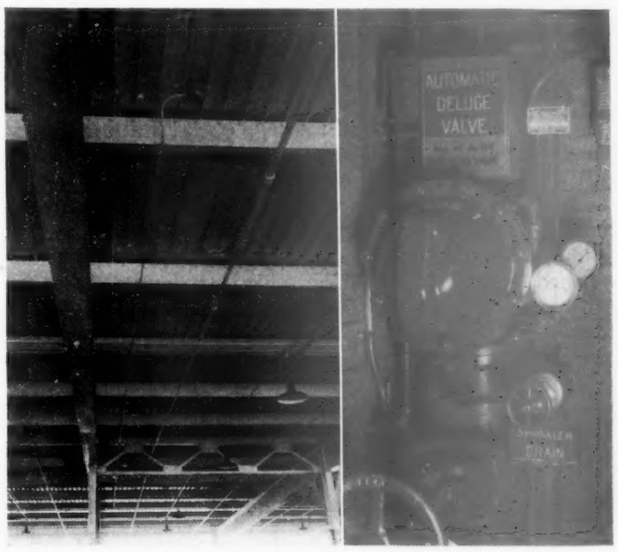
There is one phase of this problem that each railroad must consider from its individual standpoint and that is the question of carloads. The way rails are loaded now, each car is loaded to the limit, whereas if the rails are loaded by heats this will not be possible. The average weight of the full length No. 1 rails of a heat varies from 100,000 to 200,000 lb., depending upon the mill, which means that many of the heats will be too large to be loaded in one car. Various combinations, such as one heat in one car, one heat in two cars, and two heats in three cars will yield loads varying from 85,000 lb. to 115,000 lb. The average car will carry more than 85,000 lb. while there are many cars that will not carry as much as 115,000 lb. so that it will be necessary to load most of the cars with less than their maximum load and occasionally to modify the usual combination of heats per car at the different mills to accommodate small cars.

It is entirely practical for the mills to load by heats the full length and also the short No. 1 rails, providing the specifications will permit them to be loaded in the same car. Some of the mills may have to install additional finishing equipment to load rails in this manner during full time production, and provide some extra men to keep the rails in order. Likewise, while the railroads will have to bear the expense of less than full carload shipping, the advantages of laying rails by heats are so great that large economy will result from the practice.

* Manager, Rail and Fastenings Department, Robert W. Hunt Company, Chicago.

New Design of Automatic Sprinkler System

THE Automatic Sprinkler Corporation of America, Cleveland, Ohio, has developed and is installing in a number of railroad structures, a new type of automatic sprinkler system, which is designed to offer a number of advantages over the wet and dry pipe systems now in general use. The primary features of the new system, which is called the Pre-Action system, are that it detects a fire almost at its start, giving suitable alarm, and thereby provides an interval between the first sounding of the alarm and the fusing of the sprinkler heads of the system, in which the fire can be checked or put out by hand extinguishers, thus precluding water damage



Left—A Section of the Sprinkler and Pre-Action Systems in a Large Railway Pier—Note Heat Actuated Device Near the Top of the Picture. Right—One of the Automatic Deluge Valves in a Large Pre-Action System Installation

which might result from the operation of the sprinkler system. The main advantages claimed for the system are that it not only minimizes losses due to fire damage, but also losses due to water damage, which are estimated by certain insurance authorities as about 80 per cent of the total losses caused by fires in buildings equipped with ordinary sprinkler systems.

The Pre-Action system, which can be expanded in size to meet any requirements, operates on the rate-of-temperature-rise principle. The essential devices and parts of the system include a system of sprinkler pipes with fuseable sprinkler heads, a pre-action valve in the main supply line, a special release valve, and a series of heat-actuated devices spaced about the area protected.

In the Pre-Action system, there is neither water nor compressed air in the sprinkler pipes, the water being held back of the pre-action supply valve, and the pipes being filled only with air at atmospheric pressure. Control of the pre-action supply valve, or deluge valve as it is often called, is by means of an air-operated release valve, which, in turn, is operated by air pressure from the heat-actuated devices. Each heat-actuated device is a hollow metal air chamber, which is attached to the ceiling, and which normally contains air at atmospheric temperature and pressure. This device is connected to the special deluge valve release through a system of copper air tubing, which also takes in a number of other such devices, and, as any abnormal rise of temperature expands the air in the device, the increased pressure set up is transmitted directly to the valve release. Acting upon a diaphragm in the special release mechanism, the pre-action deluge valve is tripped and water rushes into the sprinkler pipes. At the same time, an alarm is set off automatically and rings constantly until stopped manually.

To prevent operation of the system through a gradual increase in temperature which would likewise set up pressure in the valve release system, a compensating vent is provided in the air tube system. This is merely an accurately calibrated opening in the air tubing, near the deluge valve release, large enough to permit the escape of air and small air pressures generated by normal rises in temperature caused by a building heating system, and yet small enough to prevent escape to the atmosphere of the greater and more rapidly built up air pressures generated by the abnormal rate of temperature rise resulting from even a small fire.

For use in ordinary buildings, the Pre-Action system is adjusted to function when the temperature begins to rise at the rate of about 15 deg. F. per minute, but it can be regulated to function upon any rate of temperature change which may be determined best for the conditions presented. Water charged into the sprinkler system upon the release of the pre-action deluge valve is held at the sprinkler heads until the fire, if not extinguished by hand extinguishers in the meantime, reaches such intensity that the sprinkler heads are fused. Then the system functions like other types of systems.

Owing to the fact that the water piping of the Pre-Action system is dry normally, it is equally as well adapted for unheated buildings as for those supplied with heat, and, inasmuch as the pipes contain only air at atmospheric pressure, there is no leakage from the pipes and only minimum delay in completely charging the system with water.

SINGLE-OCCUPANCY SECTION SALES by the Pullman Company during the year ended April 30, 1931, the first year of reduced rates for such accommodation, totaled 496,546 as compared with 76,495 in the preceding year.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended June 6 amounted to 760,890 cars, an increase of 5,819 cars as compared with the week preceding that, which included the May 30 holiday. This was, however, a decrease of 174,692 cars as compared with the corresponding week of last year and of 294,878 cars as compared with 1929. Loading of miscellaneous and merchandise freight was higher than it had been for several weeks. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading

Week Ended Saturday, June 6, 1931

Districts	1931	1930	1929
Eastern	173,008	212,242	243,691
Allegheny	148,924	189,663	219,796
Pocahontas	41,561	52,448	59,401
Southern	111,164	126,783	145,245
Northwestern	110,694	150,984	175,092
Central Western	108,514	129,096	137,630
Southwestern	67,025	74,366	73,913
Total Western Districts	286,233	354,446	387,635
Total All Roads	760,890	935,582	1,055,768
Commodities			
Grain and Grain Products	34,397	38,557	38,974
Live Stock	18,068	23,899	24,457
Coal	107,698	135,887	149,858
Coke	5,959	9,745	12,390
Forest Products	33,231	50,975	69,993
Ore	30,746	63,450	79,454
Mdse. L.C.L.	223,967	243,753	260,360
Miscellaneous	306,824	369,316	420,282
June 6	760,890	935,582	1,055,768
May 30	710,934	860,064	972,825
May 23	755,071	929,606	1,062,088
May 16	747,732	928,759	1,046,594
May 9	747,449	932,346	1,048,960
Cumulative total, 23 weeks	16,749,125	20,417,175	22,380,830

Car Loading in Canada

Revenue car loadings at stations in Canada for the week ended June 6 totaled 49,957 cars, an increase of 3,080 cars over the previous week but a decrease of 16,547 cars from the same week last year.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada		
June 6, 1931	49,957	23,751
May 30, 1931	46,877	26,066
May 23, 1931	51,173	27,890
June 7, 1930	66,504	31,109
Cumulative Totals for Canada		
June 6, 1931	1,103,257	649,286
June 7, 1930	1,339,390	828,524
June 8, 1929	1,481,623	988,103

* * *

On the Champlain Division of the Delaware & Hudson

New Appliances for Locomotives and Cars

Rubber Inserts for Passenger-Car Trucks

THE Anchor Packing Company, Philadelphia, Pa., has developed, in conjunction with the Baltimore & Ohio, and is now manufacturing rubber anti-vibration pads for installation on passenger car trucks to insulate metal-to-metal contact between the spring system and the truck frame or coach body. The pads, designated as the X.L.T. rubber inserts, are made of a rubber compound manufactured to exact specifications. The character of the material is such that it permanently sustains heavy loading. Its resiliency under stress enables the rubbers to respond to high frequency vibrations and shocks which come from the road bed through the wheels to the truck frame. In Fig. 1, the installations of the inserts are shown on a standard Pullman six-wheel passenger truck; these being in the center casting, in the ends of the elliptical springs, at the top and bottom of the spiral equalizer springs, and at the side bearings.

The center-plate insert is a rubber slab one inch thick manufactured to conform to the design of the center plate. It is installed either between the truck center plate and truck bolster assembly or may be installed between the center-pin plate and the coach bolster. The center plate inserts are designed to sustain a loading of 360 lb. per sq. in. without compressing in excess of 1/32 in. The rubber used at this point has a high frequency oscillating period in order that a maximum of noise and vibration may be eliminated at this point.

Fig. 2 shows the installation of the X.L.T. inserts at the ends of an elliptic spring. They are inserted in the lower pockets of the cast-steel end clips, and separate the metal-to-metal contact between the top and bottom spring sections, thus transmitting the entire loading on the spring. The design and the dimensions of the clip can be arranged to accommodate the assembly of all elliptic-spring combinations, whether of double, triple, quadruple or quintuple spring group. The width and height of the rubber inserts for elliptic-spring installations can be made to conform to any dimensions for any spring assemblies, and are designed to withstand a total pressure of 5,000 lb., heavier ones being available if desired.

In Fig. 3 is shown the assembly of an equalizer spring with the X.L.T. inserts in position and also the outline of the circular corrugated insert used at the top and bottom of the spring. The inserts used at this point are designed to respond to vibrations of a frequency so high that they ordinarily pass through the equalizer springs.

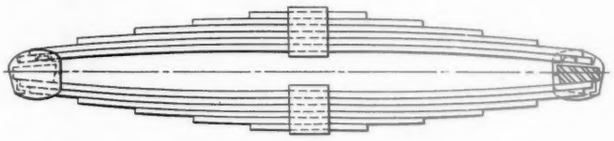


Fig. 2—X.L.T. Elliptic Spring End Clip and Rubber Inserts Assembled and Spring Set to Loaded Position

In order to compensate for the additional height resulting from the installation of the X.L.T. rubbers on the equalizer springs where used top and bottom, as is the case on the standard Pullman type of truck, certain changes to the spring seat and spring cap may become necessary. The design of the spring cap and spring seat is changed to cause these parts to fit as nearly flush as possible to the truck frame and equalizer bar. The spring equalizer cap and equalizer spring-seat design can be altered to compensate for the space required by the two 7/8-in. X.L.T. pads and the 1/8-in. washers. Should the installation of the equalizer-spring inserts and the 1 1/8-in. steel washers elevate the truck gear beyond the draft-gear height limits, such increased height is usually compensated for either at the center pin or by lowering the elliptic springs by removing the spring lift shims between the elliptic springs and the spring plank. The X.L.T. inserts are also used between

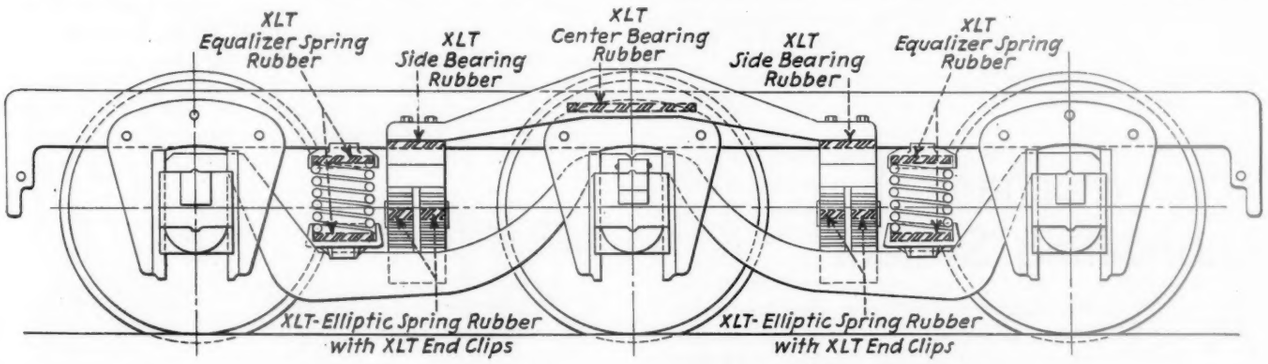


Fig. 1—X.L.T. Rubber Inserts Applied to a Standard Pullman Six-Wheel Passenger-Car Truck at the Equalizer Springs, Elliptic Springs, Side Bearings and Center Plate

side bearings and the truck frame. These are usually $\frac{3}{16}$-in. thick, but can be designed to any specifications to fit various types of side bearing assemblies adopted as standard by different roads.

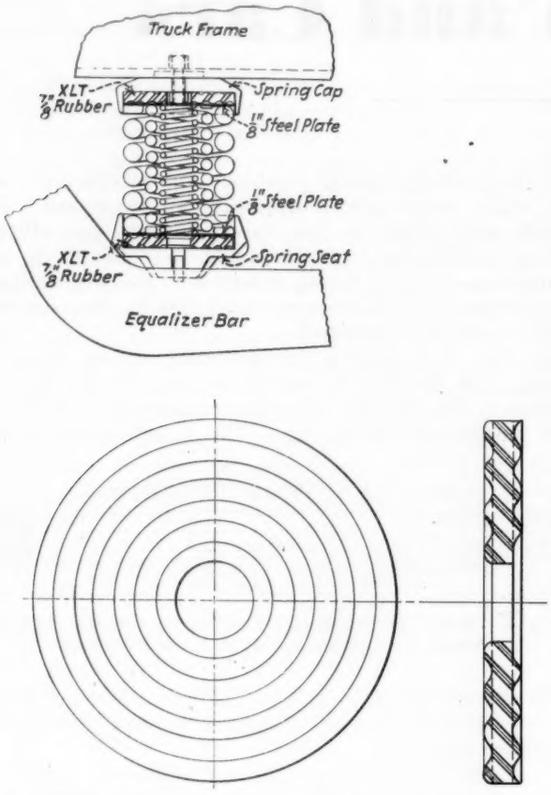


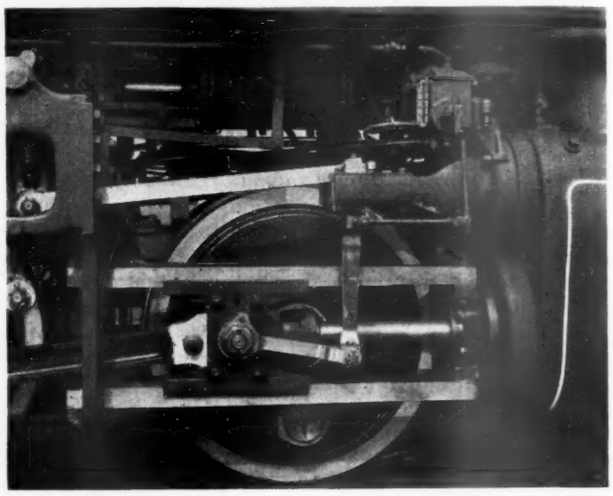
Fig. 3—X.L.T. Corrugated Rubber Pads for Equalizer Spring Installations—Note How Increased Spring Height Is Obtained by Placing the Spring Cap and Spring Seat Flush Against the Truck Frame and Equalizer

The above illustrations and description deal principally with modern trucks of the standard Pullman six-wheel type. However, inserts applicable to truck gear of practically all types can be furnished to specifications.

Edna Mechanical Lubricating System

A UNIVERSAL heavy-lubricant mechanical lubricating system for locomotives involving the use of the Edna forced-feed lubricator and special fittings is one of the recent developments of the Edna Brass Manufacturing Company, Cincinnati, Ohio. This company has manufactured forced-feed lubricators for several years and originally the lubricator described in this article, which forms a part of the entire lubricating system, was designed to distribute valve oil to valves, cylinders, air pumps, feedwater-heater pumps, stoker and booster engines and other steam-operated parts. Later, extending the research work into the general field of locomotive lubrication it was found that this lubricator was capable of handling a much heavier lubricant such as is most suitable for driving-wheel hubs, shoes and wedges, bearings, guides, flanges, chafing iron, expansion pads and other frictional and moving parts of a locomotive.

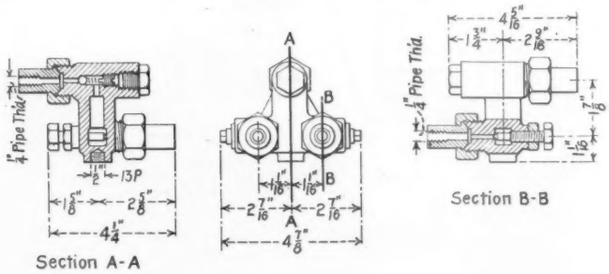
The mechanical lubricator, which is the heart of the entire system, is mounted on the locomotive in such a manner that it may derive its motion for operation from the combination lever or other suitable valve-motion part. The latest model lubricator, known as the Model 1930-Duplex, is a combination lubricator having an oil-tight partition dividing the body into two compartments,



Edna Mechanical Lubricator Mounted on the Right-Side of a Locomotive, Showing Connections to Top and Bottom Guides and Operating Mechanism Attached to the Combination Lever

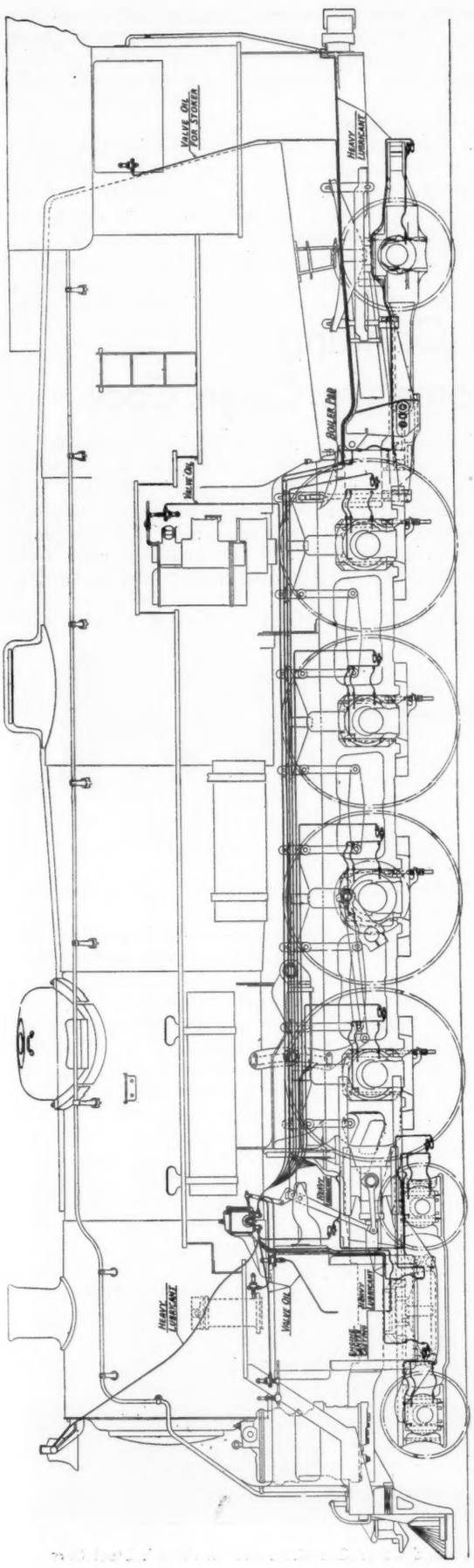
each containing a different grade of lubricant. From the compartment containing valve oil the cylinders, valves and steam appliances are oiled, while from the other compartment a heavier lubricant is delivered to wheel hubs, shoes and wedges, guides, etc. for which a heavier lubricant is more suitable. The model 1930 lubricator, which differs from the previous Model 1928 primarily in that it has two compartments instead of one, is manufactured in sizes up to 40 pints capacity, with 16 feeds. All of the moving parts operate in oil and many parts are manufactured from Nitralloy and stainless steel in order to insure long life.

The lubricator is operated by a single power-driven shaft which actuates an eccentric through a ratchet and pawl. For each feed on the lubricator there is a unit



Distributing Manifold and Terminal Showing Check and Regulating Valves

containing a plunger, check valve and a forcing valve. The forcing valve obtains its vertical motion from the eccentric. Each unit may be removed independently for repair or replacement and they are so designed that the oil pipes may be disconnected without losing the oil in the lines. Each feed on the lubricator may be adjusted separately by a screw that is conveniently located



Valves, Cylinders, Air-Compressor, Feedwater Pump, Stoker and Booster Engines are Supplied with Valve Oil, while Hubs, Shoes, Wedges, Guides, Front-End Main-Rod Bearings and Other Parts are Furnished with a Heavy Lubricant from a Single Edna Force-Feed Lubricator

just inside the cover and above the high level of the oil. The lubricator is provided with a steam heater for use in cold weather and may be mounted on either the right or the left side of the locomotive.

In equipping a locomotive with the complete system of forced-feed lubrication the heavy lubricant is piped from the outlet feeds of the mechanical lubricator to a distributing manifold and terminal which in turn may provide either two, four or six feeds. The inlet to the distributing manifold is through a ball check valve and the outlets from the manifold are through needle regulating valves, the openings of which may be adjusted and set for the desired amount of heavy lubricant. From the distributing manifold the heavy lubricant is carried through flexible connections and pipe fittings to the points where it is required.

The first installation of this type of universal lubricating system was made on a Santa Fe type locomotive and went into service February 13, 1930. At that time the connections from the lubricator were made to the hubs of five pairs of drivers, one pair of engine-truck wheels and one pair of trailer wheels. With the exception of the main drivers, which were dropped in September, 1930, for refitting and taking out the box pound, these parts have been lubricated continuously since the original installation and no repair work has been done on any of the bearings. A check of the mileage and the wear at the several bearings on subsequent dates is given in the table.

Operating Records

At the time this article was written this locomotive had covered about 75,000 miles. The average mileage between shoppings for wheel and driving-box work for locomotives of the same class and in the same service

Lateral Wear with Forced-Feed Hub Lubrication

	July 28, 1930 Mileage 24,131	Nov. 1, 1930 Mileage 39,440	Feb. 1, 1931 Mileage 53,094
Engine truck	No check	9/32 in.	13/32 in.
No. 1 front driver	¼ in.	15/32 in.*	⅜ in.
No. 2 front int. driver	¼ in.	5/16 in.	7/16 in.
No. 3 main driver	¼ in.	3/16 in.†	¼ in.
No. 4 back int. driver	7/16 in.	7/16 in.	7/16 in.
No. 5 back driver	¼ in.	¼ in.	5/16 in.
Trailer-truck wheels	3/16 in.	3/16 in.	9/16 in.

* This measurement was questioned but no recheck was made.
† Due to dropping of main wheels as mentioned above.

but without the forced-feed mechanical hub lubrication is said to have been only slightly in excess of 25,000 miles. In June, 1930, lubricator connections were added to the top guides and since that date it has not been necessary to touch the crossheads. In November, 1930, connections were added to the valve-motion parts including all pins, the bottom end of the combination lever, union link, back end of union link and the crosshead pin which takes care of the front end main-rod bearing. At the end of 7,000 miles it was necessary to take up the front-end brass on the main rod only 1/32 in. Formerly these brasses had to be taken up approximately every 800 miles. The brass at the end of 7,000 miles was apparently in perfect condition and showed no signs of disintegration.

Records were kept of the amount of lubricant required over the period mentioned in the above table. During the period when only the hubs were lubricated the average was 71 miles per pint of lubricant for a total of 14 points lubricated. After the connections were added to the guides, making a total of 16 points, the average was 67 miles per pint. After the connections were extended to the other motion parts, making a total of 24 points, the average was 59 miles per pint of lubricant.

Nickel-Clad Tank Car

A NICKEL tank car has recently been developed to meet the demands of rayon and soap manufacturers for a car which will not increase the iron content of caustic soda in transit, which results from the chemical action of caustic soda when in contact with the plates of the steel tank cars in which it is usually shipped. It is entirely possible for caustic-soda manufacturers to produce commercially caustic soda carrying not over 0.0002 per cent of iron, and it is not desirable to increase this small figure by contamination in transit.

The General American Tank Car Corporation, in co-operation with the International Nickel Company and the Lukens Steel Company, designed and built a nickel-clad car that would deliver caustic soda without contamination. Two such cars are now in service, and several others are under construction. The first car has demonstrated that contamination and discoloration of the caustic soda are eliminated. The nickel-clad steel plates have the same corrosion-resisting properties as pure nickel, and in the cars developed, the caustic soda contacts only with pure nickel.

The physical constants of nickel and steel, particularly the similar coefficients of expansions, are such as to make these two materials well suited to the production of rolled plates. In preparing the plates, slabs of steel and nickel, with carefully prepared surfaces, are placed in intimate contact, and the two heated in the proper atmosphere and to the proper temperature and rolled into the finished plate.

Such nickel-clad plates have been rolled 5/16 in. by 90 in. by 490 in. and test pieces taken from them show an ultimate tensile strength of 57,500 lb. per sq. in., a yield point reached at 45,600 lb. per sq. in. and 29 per cent elongation in 8 in. with 52.8 per cent reduction in area.

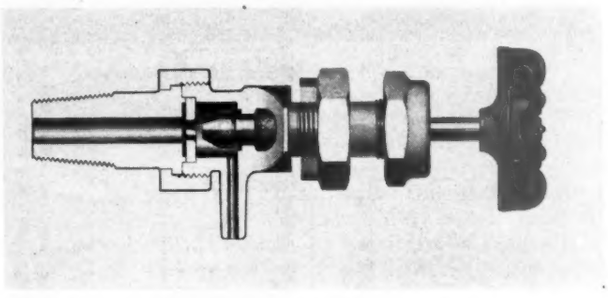
After considerable experiment, a riveted lap joint of bonded nickel and steel plate was developed to give a continuous nickel surface. This was accomplished by covering the exposed edge of the steel plate with nickel.

For parts of the car where only a protective covering is necessary, demanding no great strength, the plates can be butt welded. For this operation metallic arc welding with nickel rods, heavily coated with flux, is used. Heater coils of seamless 2-in. nickel tubing the joints of which are welded with nickel welding rods are used. A development for future nickel-clad cars will be the use of larger diameter heater coils fabricated for nickel-clad steel.

As a result of this development, 8,000-gal. nickel-clad tank cars complying in every respect with I.C.C. and A.R.A. specifications will be available for the shipping of all chemicals in addition to the transportation of iron-free caustic soda.

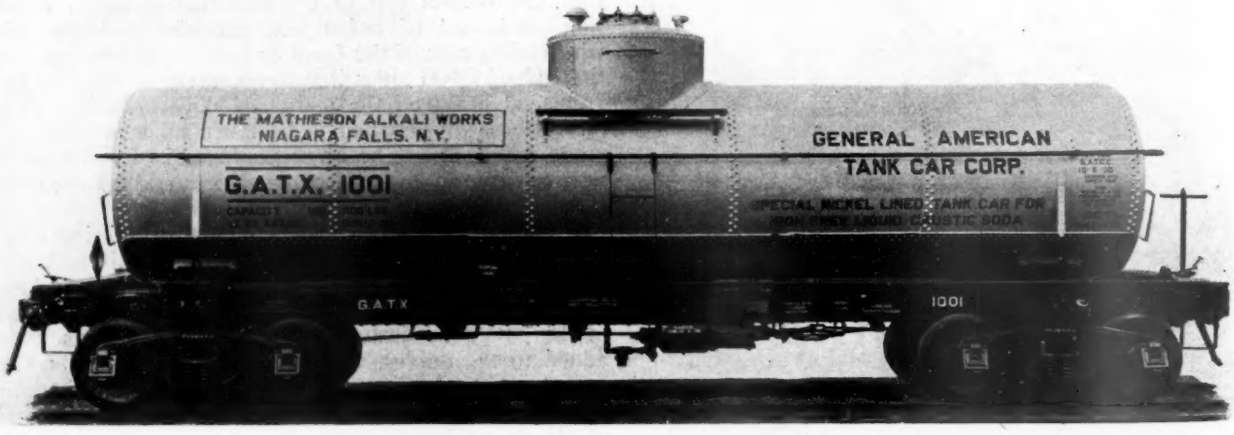
Self-Grinding Locomotive Gage Cock

THE Central Valve Manufacturing Company, 231 East Ninety-fifth street, Chicago, has recently brought out a locomotive gage cock, the body and bonnet of which is of one piece with a union connection between the body and the shank. It is designated as the Perfection No. 350 self-grinding gage cock. Clamped between the shank and body and secured by the pressure exerted by the union nut is a removable seat in the shape of a disc made of a silicon-manganese bronze called Everdur.



The Perfection No. 350 Self-Grinding Locomotive Gage Cock

The disc, which works against the seat in closing the valve, is made of Nitralloy and is hardened, ground and polished on the seating surface. It is fastened to the stem by a stainless-steel pin in such a manner that it has a small amount of free lateral movement so as



The Nickel-Lined Tank Car for Transporting Iron-Free Liquid Caustic Soda and Other Chemicals Which Attack Steel Cars

to center itself with the opening in the seat irrespective of slight disalignment of the two parts which may occur from any of the machining operations. This is to insure a perfect seat contact and to permit the valve to operate freely.

The mechanical action involved in the operation of the gage cocks results in a clean and smoothly ground valve seat. As the stem comes to a seat in the body, the threaded section of the stem, being engaged with the threads in a spring block, causes the latter to move upwards on the stem against a short spring. The pressure of this spring against the block holds the valve to its seat. Further rotation of the stem brings the spring block against its upper stops in the bonnet and the valve to a firm seat. Meanwhile, the stem has been revolving on its seat and has pulverized any dirt or scale on the seat and has ground itself to a tight joint. Where additional grinding is necessary a short movement of the hand wheel back and forth, in closed position, can be made.

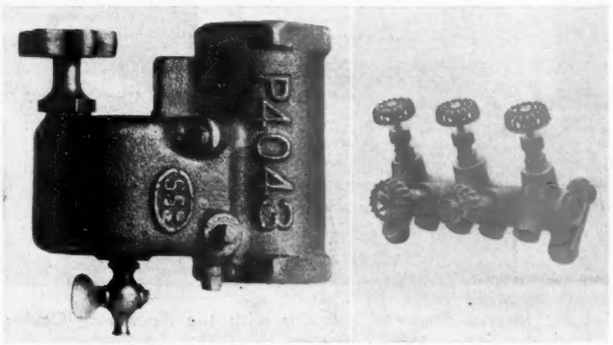
The shank part of this gage cock may be screwed into the boiler until tight and need not be removed for servicing the working parts of the cock since the seat and all other parts may be removed from the shank and taken into the shop for cleaning and repair. The union nut permits the outlet of the gage cock to be located in line with the drip pipe no matter what position the shank may be in when it is screwed into the boiler.

Coal-Pusher Lubricator and Stoker Manifold

IN the illustration is shown a manifold with self-contained valves for use with Standard stokers and an automatic lubricator developed for use with coal pushers and Duplex stokers. Both are products recently brought out by The Standard Stoker Company, Inc., 332 South Michigan avenue, Chicago.

The lubricator is constructed with no moving or wearing parts, and operates on the differential-pressure and venturi principles. It is placed in the main steam line between the throttle valve and the pusher operating valve, the main steam-supply port through the latter being partially restricted at its upper end. Consequently, when the steam throttle valve is first opened there will be a slight difference in pressure as between the receiving and the discharge end of the lubricator supply port. At the same time a venturi action is set up. This differential pressure through the main steam-supply port is communicated to the oil chamber or reservoir, through a suitable port, this resulting in a higher pressure on the top of the oil, forcing the oil upward through a small port into the main steam-supply port, where it is picked up by the steam and carried to the operating valve, and then on to the pusher cylinder. Oil will continue to flow through this small port until the pressures in the main steam-supply port are equalized, this equalization taking place as soon as the pipe line leading to the coal pusher has been charged. During this period about 1½ oz. of oil are carried from the lubricator to the coal-pusher cylinder, thus providing lubrication for both the cylinder and the operating valve sufficient for the number of pusher strokes necessary to bring the coal forward as desired.

The illustration also shows a manifold with self-contained valves, used with Standard stokers of the B, modified B and B-K types. The body of the manifold is of cast iron, and is designed to withstand pressures of over 500 lb. per sq. in. The valves, spindles and removable seats are of chrome-nickel steel. The valves



Left: Differential-Pressure Lubricator for Coal Pushers and Duplex Stoker—Right: Manifold with Self-Contained Valves for Standard Stokers

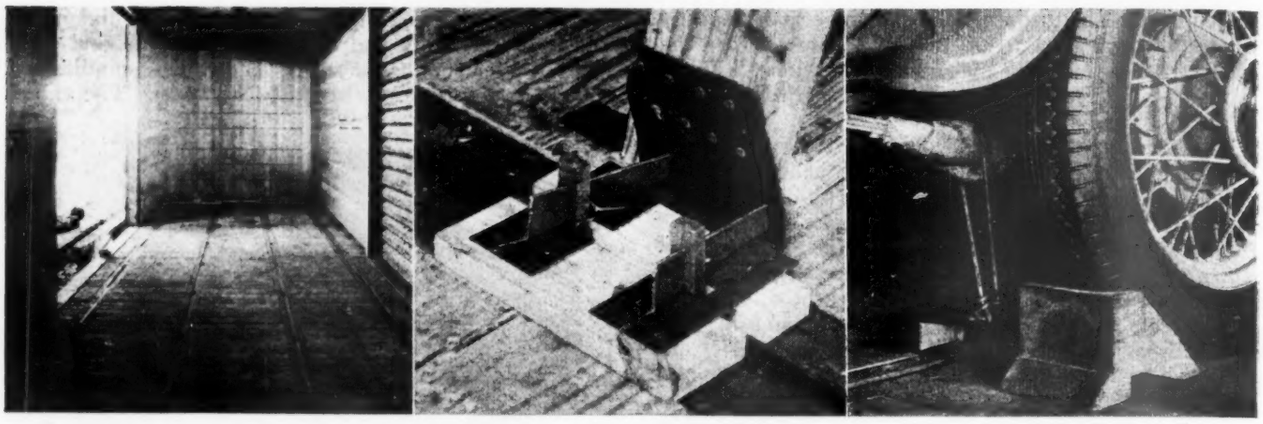
are self-adjusting, semi-coned, with a small leakage port drilled through the valve proper. The use of this manifold eliminates ten pipe joints and at the same time offers a design preferable to the original design of manifold with separate and independent valves. The construction of the valves in this manifold is such that the steam supply to the distributor can be adjusted to meet any requirements, and once adjusted they will remain set until the adjustment is changed by the fireman. The purpose of the leakage ports through the valves is to insure a supply of steam through the distributor under all conditions, thereby overcoming any possible excessive heating of the distributor, or any accumulation of condensation which might have a tendency to crack the distributor if the valves are opened suddenly.

Floor Anchorage for Freight Cars

A FLOOR anchoring device to be used for shipping automobiles and machinery has recently been brought out by the Evans Product Company of Detroit, Mich. It is designed to prevent damage to car floors as well as to speed up the loading and unloading of automobiles and other heavy objects which must be fastened securely for shipment.

The Evans floor-anchoring device consists of four parallel pairs of flat metal strips built into the floor of the freight car. Beneath each pair is a deep groove which permits the two strips to act as a metal slot which serves to hold collapsible slotted steel posts of the inverted T type. The slot also provides space for iron cross bars which may be fastened at either ends of the slotted T posts to act as an anchor for automobiles and other heavy objects. Each long metal slot traverses the length of the car and acts as a receptacle for the numerous slotted T-posts and cross bars that may be placed there when not in use.

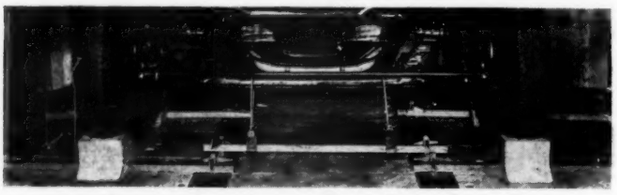
The four long parallel metal slots in the car are located so that one is on the outside and another on the inside of the four wheels of the automobile. When the automobile has been placed properly, the slotted T-posts are slid up towards the wheels until they are in



Left: Interior View of Box Car with the Anchoring Device Folded Back into the Long Metal Slots—Center: Shoring Brace for Holding Bracing of Tilted Automobiles—Right: The Device in Use on a Car Wheel and Spring

the proper position. The iron cross bars are then placed crosswise from one metal slot to the other and, by the holes in the ends of each bar, are fitted down on the vertical T-posts. They are locked securely by driving a soft iron wedge through the slot in the posts above the cross bar. Loading blocks, grooved on the under side to fit over the cross bar and contoured to fit the tire, are used to act as retainers to prevent forward, backward and lateral movement of the automobile. When all the wheels are blocked in this manner an extra tap or two with a hammer is taken on the soft wedges which are then bent to lock the cross bars to the floor.

Other cross bars may be placed crosswise and attached to the two inner metal slots between the automobile wheels for the purpose of anchoring the hold-



Front Wheels of a Tilted Automobile in Position for Shipping, Anchored to the Car Floor by the Evans Device

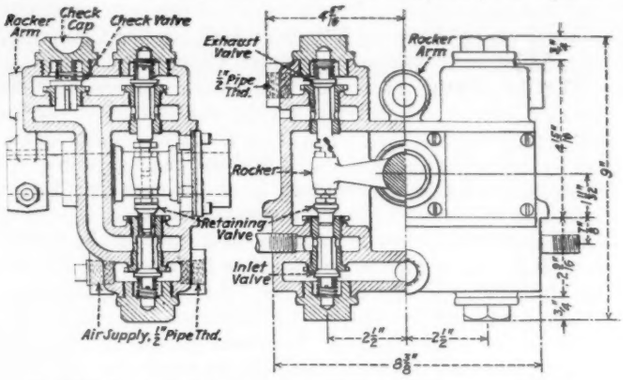
downs which pass around the automobile axle and prevent all vertical motion.

When the carload reaches the destination the unloading process requires only the removal of the soft iron locking wedges which are straightened and then driven out of the vertical T-post slots. This loosens the entire shipping-fixture assembly against the wheels and the automobile is again free as soon as the axle holddowns have been loosened from the center cross bar.

It is estimated that this device saves 75 per cent in time required under the old methods of preparing a car for shipment, while the unloading time is reduced 65 per cent. It is also estimated that it will eliminate practically all of the flooring maintenance cost of cars in which automobiles are shipped. Under the old methods a car had to be refloored about once a year because of the wear to which it was subjected each time it was loaded and unloaded. Previously, it required 128 special car-loading nails to fasten the holddowns, 96 cement-coated spikes to secure the blocks and 80 screws for the braces and various forms of loading devices which held the automobile secure while in transit. Installation cost of the anchoring system is approximately $200 per car. It weighs approximately 1,135 lb. and is designed to serve from five to ten years with almost no cost for floor maintenance.

All-Service Valve for Locomotive Reverse Gears

THE Transportation Devices Corporation, Indianapolis, Ind., has recently developed a special valve for application to power reverse gears known as the "All Service" locomotive power reverse-gear valve, which is designed to prevent creeping, slamming and surging of the gear piston. The outstanding features of this device are its simplicity of opera-



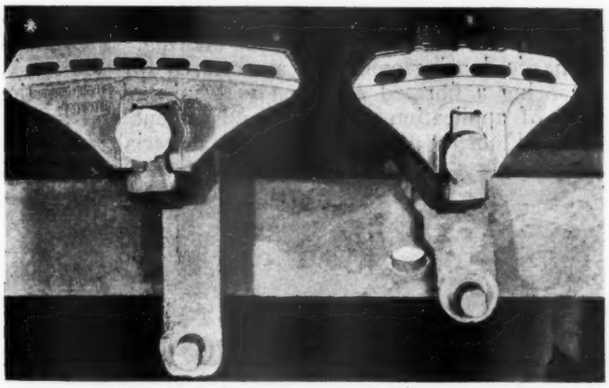
The All-Service Valve for Locomotive Power-Reverse Gears

tion and accessibility for maintenance. The reverse-gear valve is so designed that it may be removed from the gear proper when repairs are necessary thereby permitting repairs to be made to the operating valve without the necessity of removing the reverse gear from the locomotive. This valve has a separate admission and exhaust valve for each end of the gear which permits separate adjustment of lap and lead to be made on each valve. Also, any amount of lap and lead may be provided by means of a micrometer adjustment similar to automobile-engine tappet-adjustment screws. The valve is so designed that the gear cannot move to any position other than that for which it is set by the reverse lever, thereby eliminating the creeping of the gear. The speed

of the reverse-gear crosshead is so regulated that it is proportionally the same as the reverse lever, preventing "slamming" in reverse and "surging" when slack is taken up. Due to the type of operating valves used, the pull required on the reverse lever need be no greater than that which may be exerted by one-hand operation as it is only necessary to apply force enough to open these small valves.

Hulson 10-in. Tuyere-Type Grates

THE Hulson Tuyere-type locomotive grate manufactured by the Hulson Grate Co., Keokuk, Iowa, and described on page 1420D35 of the June 20, 1928, issue of the *Railway Age* was originally designed for interchange with standard Hulson fingers (straight draft), grates with the bars located on 7¼-in. centers. With the extended application of this design to large grate areas the Tuyere-type grate surface has been redesigned to locate finger bars on 10-in. centers, providing a large free opening between the bars with



The Hulson 10-in. and 7¼-in. Tuyere-Type Grates

the grate in full dumping position, to eliminate the necessity of using drop grates for most applications, the kind of coal, clinkering tendencies, combustion rates, and the size of the application considered.

The finger castings are heavier in design without an appreciable increase in weight per square foot of grate surface, making heavier sections of metal over the Tuyere openings possible, this design being adopted to lengthen the life of the finger castings. The total air opening through the grate surface can be provided over a greater range, the finger castings being furnished to give a total air opening from 20 per cent to 42 per cent of the total grate area, the percentage being determined by the kind of coal, class of service, hand or stoker firing, and the combustion rate.

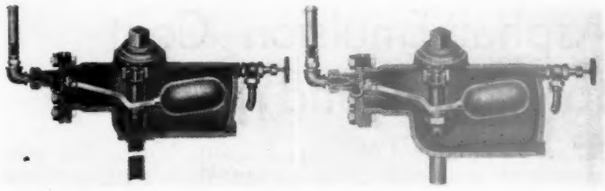
A relocation of the finger-bar trunnions in the 10-in. grate, to a point nearer the grate surface, has been adopted to eliminate the tipping action of the 7¼-in. grate. The bars are practically balanced to improve the shaking action of the grate, the crushing action by increased leverage, and to lessen the danger of damage from cocked grates, in the event the shaker levers should not be locked.

The section of the finger bar has been increased by 30 per cent, and the finger-bar trunnions are 2 in. in diameter, to increase the bearing surface and life of the trunnions.

The sections throughout the grate frames have been increased, making a heavier design for the whole assembly. The weight of the 10-in. design in the grey-iron mixture used, will vary from 72 lb. to 82 lb. per sq. ft., this weight including the side frames, center frames, dead grates, and drop grates. With steel castings, smaller sections are possible and the weight can be reduced to 60 lb. to 65 lb. per sq. ft., without a change in the grate surface design.

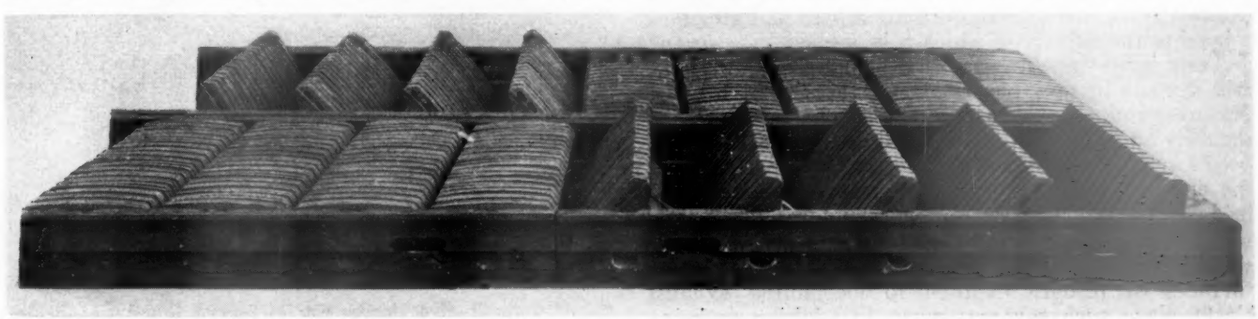
Improved Cleveland Low-Water Alarm

THE Barco Manufacturing Company, 1801 Winnemac avenue, Chicago, has recently effected some improvements in its Cleveland low-water alarm which are incorporated in the F-3-A alarm. Referring to the illustrations it will be noted on the F-3 type alarm



Left: The F-3 Cleveland Low-Water Alarm with the ½-in. Riser—Right: The F-3-A Alarm with the ½-in. Riser Designed to Increase the Mud Capacity of the Alarm

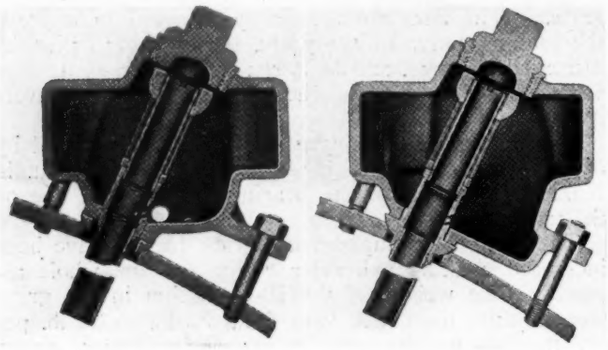
that the riser on which the float rests when in its lowest position, is only ½ in. above the bottom of the inside of the body. In the F-3-A alarm this riser is 1½ in.



Complete Assembly of Hulson 10-in. Tuyere-Type Grates with Two Sections Tilted to Show the Free Opening Between the Bars with the Grate in Full Dumping Position

high. This change was made to provide additional protection in the event of failure on the part of the supervisory forces to wash out the alarm at regular boiler-washout periods. The F-3-A alarm has approximately six times the mud capacity as the F-3.

The second illustration shows that the sleeve and ball joint are made in one piece in the F-3-A alarm,



Left: The F-3 Alarm Showing the Exposed Threads on the Drop Pipe—Right: The F-3-A Alarm Which Shows the One-Piece Sleeve and Ball Joint and Brazed Drop Pipe

eliminating the threading of the sleeve into the body. This design was adopted to prevent any possibility of the sleeve unscrewing. Also in the F-3 type of alarm, the threads of the drop pipe at the sleeve are exposed and subjected to steam action so that the drop pipe will eventually become weaker at this point than at other points. In the F-3-A alarm the pipe is counterbored at the end of the threads where it screws into the ball-seat sleeve and is brazed so that there are no pipe threads exposed, giving the pipe full strength at this point.

Asphalt-Emulsion Coat for Metal and Wood

THE Flintkote Company, Boston, Mass., has patented a process, whereby asphalt is rendered miscible with water, making possible the application of asphalt for protecting coatings, mastic floorings, and other railroad uses, without the danger and difficulties involved with hot applications. This process consists briefly of suspending minute particles of pure asphalt in a water vehicle by means of a mineral colloid. The emulsified asphalt so produced may be applied as a protective coating to metal, wood, or masonry surfaces, the relatively soft asphalt forming a base and affording a bond to the surface to which it is applied.

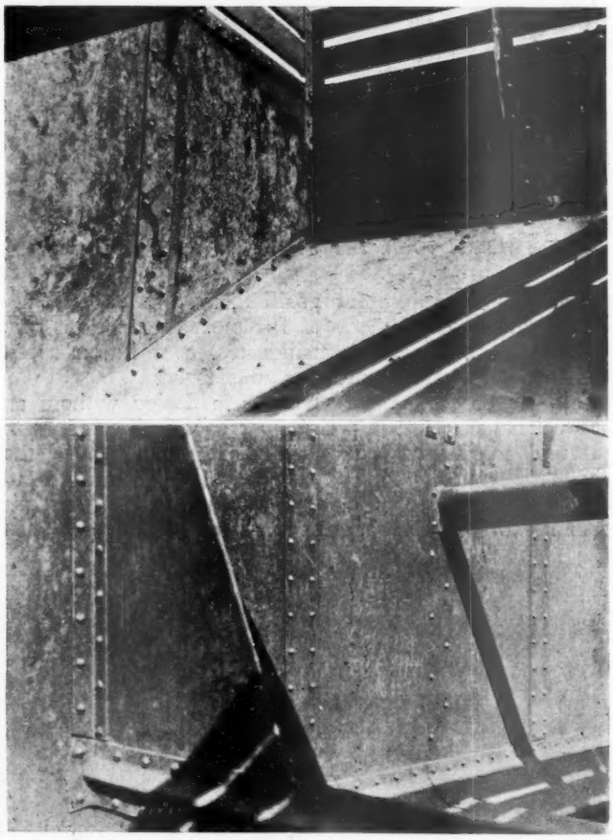
Tests have shown that a dried film of this material will not run or flow on vertical surfaces at high temperatures and that it embraces the characteristics of ductility and absence of internal flow or sag. It can be used in railroad maintenance and construction work for the protection of exposed metal, masonry or wood on bridges, roundhouses, train sheds, and car roofs, and as a protective coating on the metal sides of tank cars, gondolas, hoppers, etc. It is also used to coat the under surfaces of bridges exposed to locomotive exhaust blasts, since such surfaces must, in addition to being protected from weather and water, resist the effects of acid formed by the steam and gases, and also the cutting action of the blast itself. The asphalt emulsion, being a relatively soft coating, can resist this cutting action.

As waterproofing and dampproofing, it can be applied to masonry surfaces by brush or air spray, without the use of heat or solvents. The protection of thermal insulation, cork, magnesia, asbestos, etc., from the disintegrating effect of steam drip or moisture-laden air is also said to be accomplished by the use of this material. It has demonstrated its suitability for this purpose on boilers, steam lines, refrigeration insulation, heated tanks, etc.

This mineral-colloid type asphalt emulsion can be thinned with water or mixed with fibres or fillers, cement or electrolytes, to produce heavy-bodied mastic coatings of troweling consistency. These can be used where a coating must not only possess waterproof and weatherproof qualities, but must, in addition, resist severe abrasive action to which the sides of gondola or hopper cars, refrigerator-car insulation, etc. are subjected.

When Flintkote asphalt emulsion is applied to a surface, the water evaporates and the particles of the asphalt coalesce, or run together, to form a film. It therefore can be applied to surfaces which are damp. On very dry surfaces, such as old cement or concrete construction, specifications call for dampening the surface with water before the emulsion is applied.

One of the most important uses of the asphalt emulsion is in the installation of mastic flooring. Two types of mastic flooring emulsions are offered for this work, one being a fibrated emulsion which is mixed at the point of application with Portland cement and aggregates. Flooring produced with this material is applied



Above: Interior of a Hopper Car in Service One Year—Below: Interior of a Similar Car in Service One Year, the Metal of which was Originally Coated with Flintkote Asphalt Emulsion

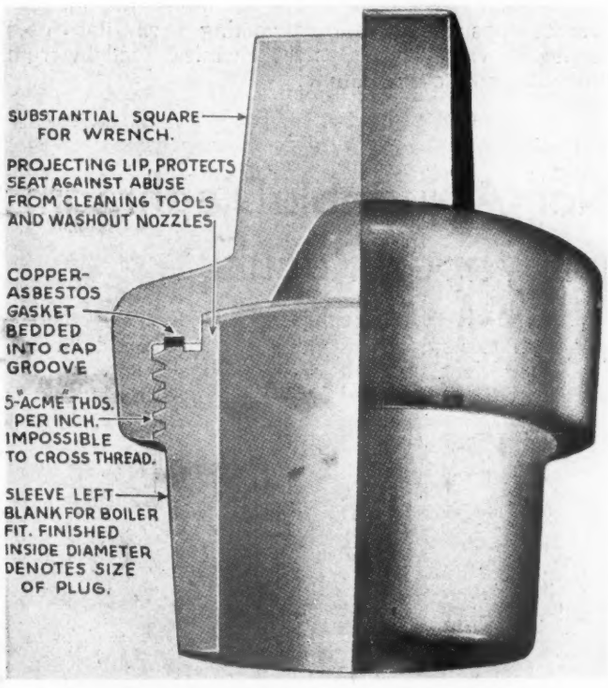
over metal, wood, or composition base to a thickness of ½-in. This flooring weighs approximately 4.5 lb. per ½-in. thickness.

Another type of the asphalt emulsion flooring contains the proper proportions of selected aggregates, incorporated during manufacture, and requires no addition of Portland cement or aggregate before installation. This material is generally used to resurface car floors which have cracked or disintegrated. The recommended thickness of application is from ⅛ in. to ¼ in., with a resultant weight of approximately 2 lb. per sq. ft. for ¼-in. thickness.

Washout, Arch-Tube and Inspection Plugs

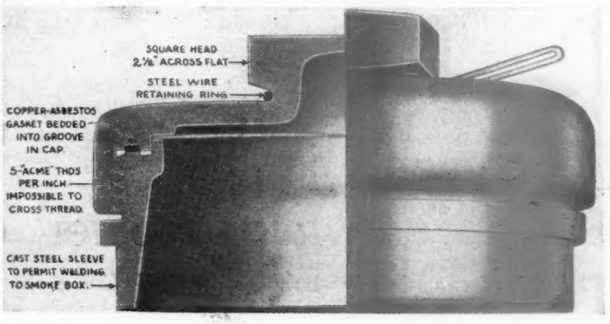
IN order to provide adequate strength and tightness to withstand the highest pressure on modern locomotives, the T-Z Railway Equipment Company, 14 East Jackson boulevard, Chicago, Ill., has improved its line of washout and arch-tube plugs of drop-forged steel which were first described on page 1490D54 of the June 23, 1928 issue of the *Railway Age*. Each plug consists of a cap and sleeve with a copper asbestos gasket bedded into a groove in the cap to seal the joint. The parts of the plugs are interchangeable but are now provided with five Acme threads per inch, to insure against cross threading the cap and sleeve.

The openings through the sleeves are large, with clear passages and no threads, to eliminate the possibility of filling with scale or sediment. Projecting lips protect the seat between the cap and the sleeves to prevent damage by washing rods or nozzles during washout operations. The stems of the sleeves are left in the rough to be threaded to the size required by the user. When threaded and applied to the boiler they extend beyond the sheet and an expander with special tapered rolls is used to flare them out into the water space to prevent backing out when removing the caps. The caps have square heads to provide a grip for wrenches.


SUBSTANTIAL SQUARE FOR WRENCH.
PROJECTING LIP, PROTECTS SEAT AGAINST ABUSE FROM CLEANING TOOLS AND WASHOUT NOZZLES
COPPER-ASBESTOS GASKET BEDDED INTO CAP GROOVE
5" ACME" THDS. PER INCH. IMPOSSIBLE TO CROSS THREAD.
SLEEVE LEFT BLANK FOR BOILER FIT. FINISHED INSIDE DIAMETER DENOTES SIZE OF PLUG.

The T-Z Drop-Forged Steel Arch-Tube Plug

Along with the illustration of these plugs is one showing an inspection plug recently placed on the market by this company. These plugs are applied to the smoke boxes of locomotives and when the caps are removed, they have a clear opening of 5¼ in. diameter.

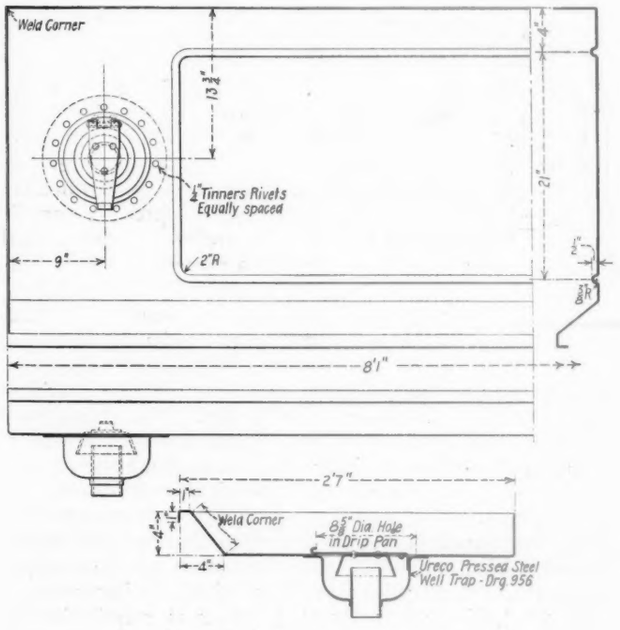

SQUARE HEAD 2⅞" ACROSS FLAT
STEEL WIRE RETAINING RING
COPPER-ASBESTOS GASKET BEDDED INTO GROOVE IN CAP.
5-ACME THDS PER INCH. IMPOSSIBLE TO CROSS THREAD.
CAST STEEL SLEEVE TO PERMIT WELDING TO SMOKE BOX.

The T-Z Front-End Inspection Plug

The plug consists of a cast-steel ring which is welded to the smoke box, a cast-iron cap with a loose wire ring to prevent its being lost or misplaced and it is provided with a copper asbestos gasket to seal the joint. The cap and sleeve are provided with Acme threads in the same manner as are the washout and arch-tube plugs.

A Drip Pan for Refrigerator Cars

A DRIP pan of a design suitable for all types of refrigerator cars, constructed of heavy steel made to any required specifications, has recently been developed by the Union Railway Equipment Company,



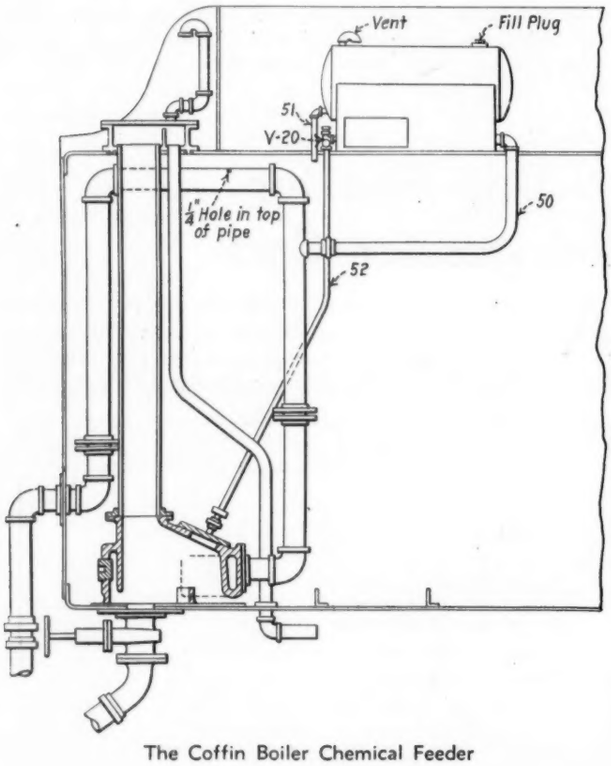
The Ureco Drip Pan for Refrigerator Cars

McCormick Building, Chicago. The drip pan is provided with a rib, oblong in shape, which is designed to prevent the salt from leaving the drip pan or clogging the well trap, and at the same time to provide proper drainage for the water. The accumulation of the salt can be removed from the pan as conditions require. It was developed to provide a drip pan which would successfully resist corrosion and prevent leakage, thus requiring less frequent replacements.

The drip pan is 8 ft. 1 in. long, 2 ft. 7 in. wide, 4 in. high and is fitted with a pressed-steel well trap 8-5/8 in. in diameter. It is welded at all the corners.

Refinements in the Coffin Feedwater Heater

THE feedwater heaters built by the J. S. Coffin, Jr., Company, Englewood, N. J., intended for service in bad-water districts are now furnished with bronze heater heads and tube sheets and the Coffin control valve has been redesigned with separate steam and water leakoffs. The control valve has been redesigned to overcome the tendency in bad-water districts for the leak-off pipe to scale quickly as a result of the combining of the hot steam and cold water. The steam and water pistons are now separated by a piston rod which operates through a bushing secured to the body of the control valve. The steam leak-off now leads to the pump exhaust line and the water leak-off goes to the pump suction line. With this arrangement the water piston is kept cold during the operation of the control valve, thus making the possibility of its scaling remote.

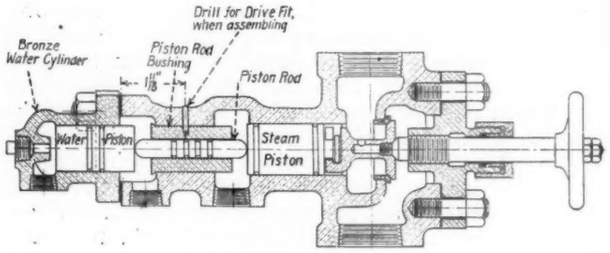


The Coffin Boiler Chemical Feeder

In territories where treated water is required this company is offering the Coffin boiler chemical feeder which affords an independent and automatic method of injecting the chemical compound into the feedwater It consists of a drum container, equipped with a suitable vent and filler plug, an indirectly acting thermostat, a needle valve and the necessary piping. It is located on the tender of the locomotive over the Coffin auxiliary heater and is in close proximity to the condensate-line loop. Its operation is as follows:

When the main heater is working a portion of the hot condensate on its way to the auxiliary heater passes through pipe No. 50 and acts on the thermostat which opens the needle valve. This permits the chemical to flow by gravity to the mixing chamber of the auxiliary heater, where it unites with the hot condensate and feedwater. The temperature of the feedwater in the auxiliary heater and in the main heater hastens the chemical action.

The needle valve is adjustable and permits the proper amount of chemical to be fed to the chemical feeder. After passing the thermostat, the condensate in pipe No. 50 is exhausted to atmosphere through pipe No. 51.

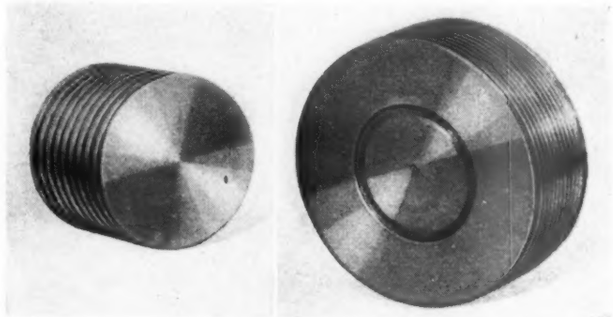


The Coffin Control Valve which Is now Designed with Separate Steam and Water Leak-Offs

When water is not being fed to the boiler, the hot condensate stops and the indirectly acting thermostat closes the needle valve and stops the chemical feed in from thirty seconds to one minute.

Non-Adjustable Diaphragms for Vapor Regulators

A UNIVERSAL diaphragm with sufficient energy to expand against high pressures, and having sufficient travel to require no adjustments has recently been introduced by the Gold Car Heating &



The Gold Non-Adjustable Diaphragms for Vapor Regulators and Steam Traps

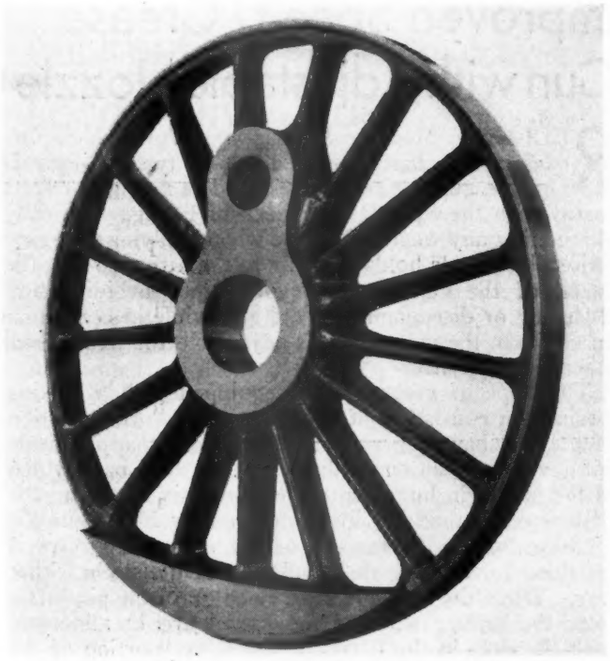
Lighting Company, Bush Terminal, Brooklyn, N. Y., to prevent steam blow caused by high-pressure train line

or improper adjustment on regulators and traps. Looseness or wear in mechanical movement of vapor regulators is also compensated for by these diaphragms, which are designed to insure a tight valve at all pressures up to 200 lb.

This diaphragm consists of a cylinder and piston surrounded by an accordion bellows. The full motion of this diaphragm is ⅝ in., and is normally in a collapsed position, being compressed by a vacuum and hermetically sealed. The expansible gases being incased in a position that brings them in contact with the steam or atmosphere, they respond to the slightest change in temperature. The diaphragms are constructed so as to require no adjustment. With this design it is necessary to use a new style cover on both traps and regulators, which covers are designed to fit all makes of existing equipment.

High-Test Steel Castings for Locomotives

NORMALIZED steel castings suitable for such parts as driving-wheel centers, crossheads, driving boxes, cylinder heads, etc., of specifications designated as S-302-31, are being produced by the Standard Steel Works Company, Burnham, Pa. The steel is produced by the acid open-hearth process and, after pouring, the castings are allowed to cool below the critical range of temperature, after which they are normalized and tempered by heat treating. The normalizing process consists of heating the castings to a proper temperature to refine the grain and, after being held at that temperature for a sufficient length of time, they are withdrawn from the furnace and allowed to cool in still air. After normalizing the castings are reheated to relieve cooling strains and to develop maximum ductility.



Wheel Center Cast by the Standard Steel Works to Conform to its S-302-31 Specifications

The specifications for the steel calls for a phosphorus content of not over .05 per cent and also a sulphur content of not over .05 per cent. An analysis of each heat is made to determine the percentages of carbon, phosphorus and sulphur. The chemical composition thus determined is reported to the purchaser of the castings made from each particular heat.

The castings made from steel of the S-302-31 specifications must conform to a minimum yield point of 50,000 lb. per sq. in. and a minimum tensile strength of 85,000 lb. per sq. in. The elongation in 2 in. is 22 per cent and the reduction in area is 35 per cent. The yield point is determined by the drop of the beam of the test machine. Where orders are placed covering castings not exceeding 150 lb. in weight, a test to destruction of one casting from each 100 castings or smaller lot may be substituted for the tension test. Tension-test specimens are the A.S.T.M. standard 2-in. specimen.

A specimen to represent each tempering lot is taken for microscopic examination from each tensile-test specimen, chosen from that part of the specimen not deformed by the tension test. The section for microscopic examination is cut transversely to the axis of the tensile-test specimen and is polished, etched with a four-per-cent solution of nitric acid in alcohol, and examined under a magnification of 100 diameters.

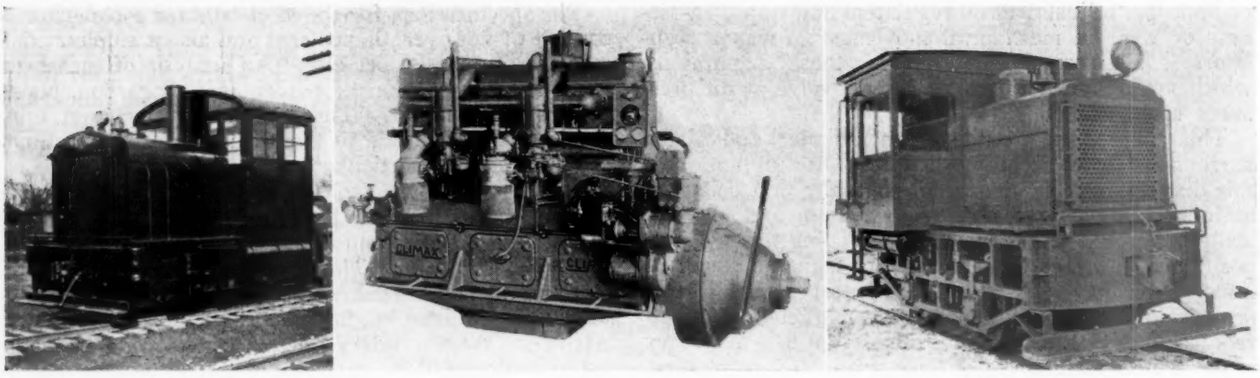
Climax Engines for Industrial Locomotives

THE Blue Streak overhead-valve engine, the product of the Climax Engineering Company, Chicago, has been applied to a number of industrial locomotives since it was first brought out a little more than a year ago. This engine is built in both six-cylinder and eight-cylinder designs for this service. The eight-cylinder engine, designated as the R-8-I, has 6-in. cylinders with a 7-in. stroke and develops 200 hp. at 1,000 r.p.m. and 225 hp. at 1,200 r.p.m. The six-cylinder engine, designated as the R-6-I, shown in the illustration, also has a 6-in. bore and 7-in. stroke and it develops 170 hp. at 1,200 r.p.m. In gas-electric service both engines can be used in either single or double units in 25- to 45-ton locomotives, giving a horse-power rating per ton of weight of from 7.5 hp. to 8.5 hp.

In the illustration is shown also a 22-ton and 40-ton Whitcomb gas-electric locomotive equipped with Climax Blue Streak engines. The 22-ton locomotive is of the single-unit four-wheel type. The width over the frames is 75 in. and the width over the cab is 108 in.; the length over the frames and over the couplers is 157 in. and 214 in. respectively. The locomotive has a wheel base of 68 in. and a height of 127 in. It is equipped with a Westinghouse 180-C-5 type generator with a continuous rating of 500 volts and 210 amp. at 1,200 r.p.m. Two Westinghouse 908-CD motors, each with a rating of 75 hp., are used.

The 40-ton locomotive has a wheel base of 78 in., an over-all length of 20 ft. 10 in. and a total width of 10 ft. It is powered by a Climax R-8-I engine and is equipped with a General Electric DTZ-2125 generator and two General Electric 297-A motors with a 210 rated shaft horsepower.

A 45-ton swivel-truck locomotive equipped with two Climax R-6-I engines and Westinghouse generators



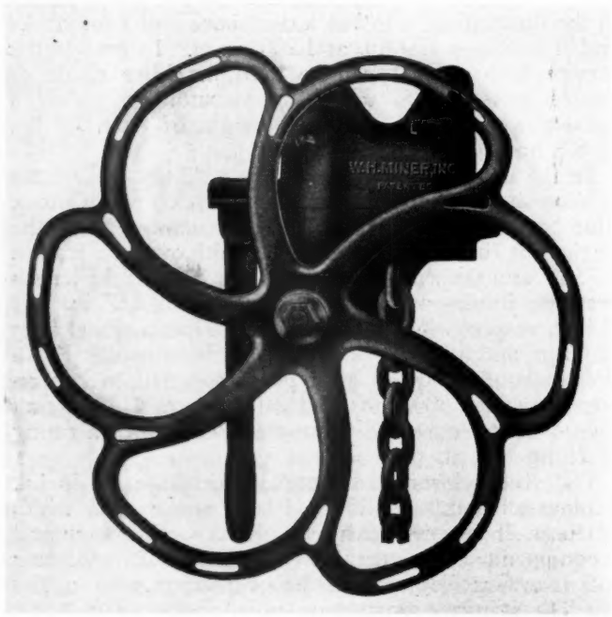
Left: A Whitcomb 40-Ton Gas-Electric Locomotive Powered by Climax Blue Streak R-8-1 Engine—Center: The Climax Blue Streak R-6-1 Engine—Right: A Whitcomb 20-Ton Gas-Electric Locomotive Powered by an R-6-1 Engine

and motors was recently built by the H. K. Porter Company, Pittsburgh, Pa., for the Chicago, Burlington & Quincy. A complete description of this locomotive will appear in a subsequent issue of the *Railway Age*. Other locomotives equipped with Climax engines which have recently been built include a 20-ton mechanical-drive locomotive by Faite-Root-Heath Company of Plymouth, Ohio, and a 24-ton gas-electric locomotive built by H. K. Porter Company with electrical equipment by Westinghouse.

Miner Power Hand Brake

A POWER hand brake, recently placed on the market by W. H. Miner, Inc., Chicago, is designed to provide positive control of freight-car movements with a minimum of physical effort and with absolute safety to trainmen. This hand brake does not employ the ordinary pawl and ratchet but operates on the worm and gear principle. The slack is quickly taken up by spinning the wheel and the equivalent of air-brake power can be obtained by a few easy lifts with one hand. The load holds automatically as applied and can be backed off by simply reversing the operation. The ability to apply this brake and graduate the pressure on and off at will is said to enable a trainman to control a car and to spot it accurately. Instant and full release is obtained by lifting a conveniently located lever. The release feature of this brake is unique in that full chain slack is instantly delivered without the slightest movement of the hand wheel in either direction.

The wheel is designed for a comfortable handhold at the point where the pull is most effective. Heat-treated steel is used exclusively in the construction of the winding and release mechanism in order to assure maximum strength and durability. This mechanism is completely protected from the weather by a substantial housing.



Miner Hand Brake Designed for High Power Combined with Safe and Easy Operation

Improved Spee-D Grease Gun with Adjustable Nozzle

RELIANCE Machine & Stamping Works, New Orleans, La., has developed a new type of Spee-D grease gun for road service. The new gun effects a seal with the Spee-D filler neck or fitting, practically eliminating any waste of grease when applying; the new adjustable nozzle holds it firmly to the fitting so that the barrel of the gun cannot revolve, thus avoiding any loosening or disengaging of the gun while in operation. In addition, the new nozzle is adjustable for wear which assures longer life.

This type of grease gun is equipped with a locking mechanism consisting of six slots in the socket portion of the gun barrel, permitting six different adjustments with every revolution of the wheel. A hole is provided in the barrel in line with each of the six slots and the adjustment is made by inserting a removable pin in one of these holes. At the top of the sleeve, a groove is provided for limiting the revolution of the sleeve either way. When the sleeve is unscrewed, until the pin hits a stop, the proper slots of the barrel are in alinement with the slots in the barrel of the sleeve portion of the gun and it is then ready for immedate attachment.

The tightening operation is accomplished by revolving

the engaging handle less than one-half turn and for removing it is turned back to the stop on the sleeve. After the nozzle has been applied to the grease-cup fitting, the

A Removable Pin in One of the Six Slots of the Barrel Forms a Positive Locking Mechanism

pin in the fitting holds the gun barrel in position so that it cannot revolve while the seal is effected by tightening the nozzle.

Nickel-Content Locomotive Flues

THE Globe Steel Tubes Co., Milwaukee, Wis., as a result of experiments over several years has compiled the following data and service records on its nickel-content seamless-steel locomotive flues:

One locomotive equipped with .25 per cent Globe nickel-content tubes has been shopped twice since the installation of the tubes six years ago. At the last shopping the tubes were removed, cleaned, inspected, safe-ended and reinstalled. The tubes showed no evidences of pitting, although the locomotive was used almost exclusively in the bad-water districts of the West. During the six-year period, the locomotive ran 145,000 miles, this rather low figure resulting from the fact that the locomotive was in storage part of each year. From the condition of the tubes, when examined upon removal, the mechanical department of the road estimated a service life of 500,000 miles.

Operating data from another road show that a set of the nickel-content tubes were removed from service in one locomotive after making 208,000 miles and were then transferred to another locomotive which made an additional 62,000 miles before the tubes were removed. The tubes were then applied to a third locomotive on Jan. 20, 1931, and up to the present time are still in service, making a service record of 270,000 miles for this set of tubes.

Ranarex CO_2 Indicator and Recorder

THE Permutit Company, 440 Fourth avenue, New York, has redesigned its Ranarex CO_2 indicator and recorder. The established Ranarex principle, based on specific gravity, has been retained, but the design has been simplified, and the machine made more compact. It is adaptable to stationary as well as to locomotive boilers, for the purpose of saving fuel.

All working parts are accessible, the entire indicating and recording mechanism being attached to one plate, and the driving mechanism, including the motor, to another. Both plates may be removed without the use of tools, by loosening several wing screws; their removal opens all gas passages over their entire length. Connection between the humidifier compartments and the measuring chambers is established by channels of large cross section.

In most instances the time lag will be less than a minute. This is important to the engineer and fireman,

The Ranarex CO_2 Wall-Type Indicator and Recorder

as it enables them to correct firing conditions just as soon as a change is needed. Hence the proper percentage of CO_2 can be maintained at all times.

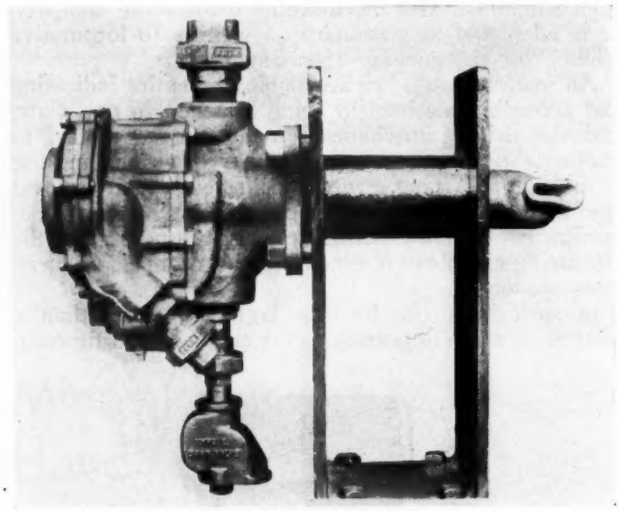
Corrosion-resistant materials such as bakelite and alloy steels are used for parts in contact with flue gas. The machine is enclosed in a dust-proof cast-aluminum casing and is not affected by heat, moisture or shock. It is available for wall or panel mounting.

The standard 9-in. scale and circular chart 8 in. in diameter are graduated from 0 to 20 per cent CO_2, and accuracy within 0.3 per cent CO_2 is guaranteed. The

Ranarex recorder can be furnished with any desired scale range for special applications where the specific gravity of a gas mixture is a guide to efficient operation.

Automatic Superior Flue Blower

THE Superior Railway Products Corporation, Pittsburgh, Pa., has recently made several improvements in the Superior locomotive flue blower. The new device known as the Superior Automatic Flue Blower is now entirely automatic in operation and has been re-



An External View of the Superior Automatic Flue Blower Showing Application to Firebox Sheets

designed so as to eliminate weight wherever practicable. The mechanism is completely enclosed and is mounted on the locomotive firebox in such a manner that there is practically no possibility of steam leaks obscuring the vision of the engineman. By thus enclosing the working parts the possibility of interference with operation because of dirt and corrosion is materially lessened. The nozzles are made of a special heat-resisting alloy and, in addition to being protected by a shield against intense heat, are now provided with a special air-cooling device which, by means of a check valve, permits air from the outside atmosphere to play through the nozzle when the blower is not in use. The Superior Flue Blower consists essentially of a body casting which is fastened to the side of the boiler. This body houses a small turbine and driving mechanism which oscillates the nozzle. The impeller in the turbine has been redesigned for greater efficiency and the governing and control mechanism has been improved, the latter to provide for varying boiler pressures. The exhaust outlet has been enlarged so as to reduce the possibility of back pressure.

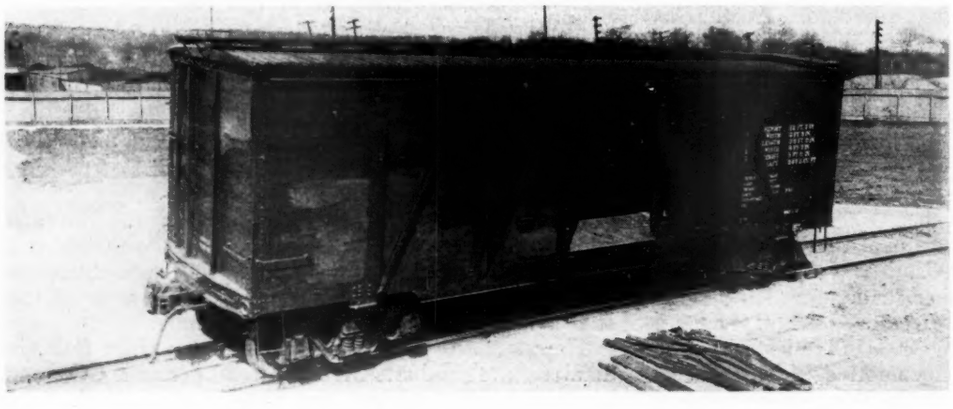
Williams Corrugated Steel Car Roof

WITHIN the past few months the Williams corrugated steel freight-car roof has been placed on the market by Fred W. Aishton, 1416 Williamson building, Cleveland, Ohio. The Williams roof is the result of an effort to provide the simplest form of steel roof construction containing maximum strength, minimum weight and sufficient flexibility to absorb weaves, twists and car-body movements without injury to the roof sheets or their weatherproofing qualities.

This roof is manufactured from 14-gage steel sheets pressed in the form of an arch which is continuous from one side of the car to the other with deep corrugations running transverse to the center line of the car which act as a series of carlines. This combination of arch form and stiffening corrugations provides a self-supporting steel roof dispensing with any interior framing such as ridge poles, carlines and purlines except for a minimum number of carlines which act as car-frame stiffeners.

The roof sheets used in the manufacture of this roof are either open-hearth or copper-bearing steel, galvanized or not as desired, and range from 20 to 40 inches in width. The corrugations are 1-5/16 in. deep and 5 in. between the centers.

In applying the Williams roof a side plate of 3/16-in. to ¼-in. steel, pressed to the proper section and running the full length of the car at each side, supports the arched sections which are securely fastened to it. The end fascia, riveted to the side frames, is pressed from heavy steel of a shape to fit the end sheet of the roof. The corrugated roof sheets are laid with an overlap at each side of one full corrugation providing a watertight joint. The corrugations provide quick drainage and there is no opportunity for water, cinders or other foreign material to collect and cause corrosion. The running board is supported by light pressed-steel saddles and the roof itself affords a secure footing when it



Car Equipped with Williams Corrugated Steel-Car Roof of 14-gage Steel—The Car Shown has been in Service for the Past Nine Years

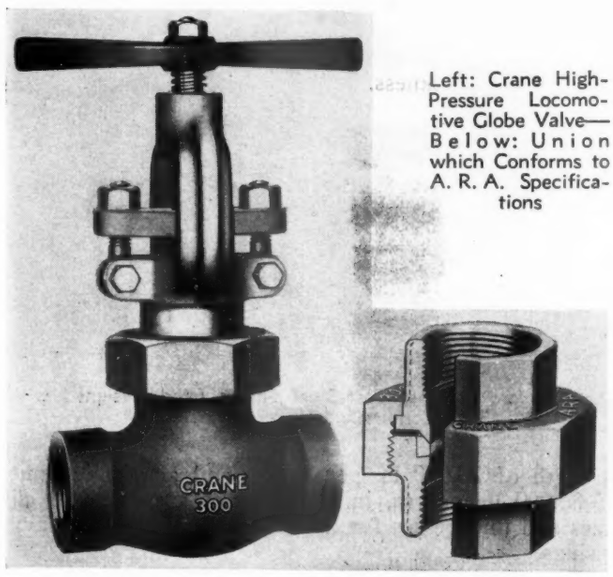
is necessary for trainmen to walk upon it. The design is readily adapted to any type of freight car requiring a roof.

The Williams roof weighs approximately 70 lb. for each foot of car length. Each roof sheet of 14-gage steel, when securely riveted to the side rail will carry the following loads either at the roof center or at the eaves: 9 ft. cars, 1,040 lb.; 9 ft. 6-in. cars, 890 lb.; 10-ft. cars, 845 lb.

The Williams Corrugated roof was first applied to cars on several eastern railroads in 1922 and has been in continuous service for the past nine years.

Crane Valve and Fittings for Railroad Service

THE Crane Company, Chicago, is now manufacturing a line of unions which comply in respect to dimensions and interchangeability of parts with the specifications adopted by the American Railway Association last year. This company also placed on the market recently a line of high-temperature locomotive

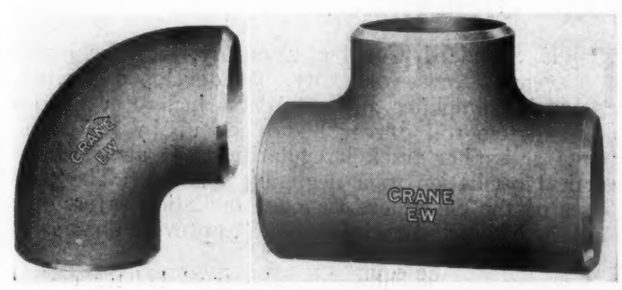


Left: Crane High-Pressure Locomotive Globe Valve—Below: Union which Conforms to A. R. A. Specifications

globe valves, and a line of fittings for insertion in welded pipe lines.

The unions are recommended for 300 lb. saturated steam pressure and are designed for use in general railroad service for steam, water and air. The high-pressure locomotive globe valves are designed expressly for locomotive service and are recommended for 300 lb. steam working pressure and 750 deg. total temperature. The bodies are of cast Monel metal, the bonnets and union bonnet rings are of nickel alloy, the stems are of Exelloy, the discs are of nickel composition, and the renewable seat rings are of Exelloy. The seat and disc arrangement of the valve is of the plug type.

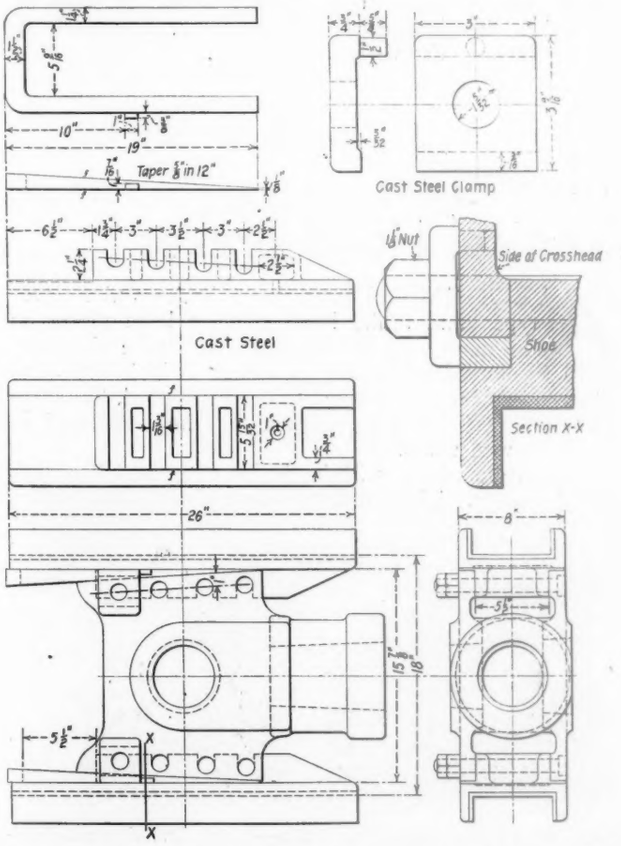
The rapid advancement in the art of welding pipe lines has led to the development of fittings, the ends of which are beveled for insertion in welded pipe lines. The fittings are designed to eliminate the welder's difficulty of making mitre 90 deg. bends. They are obtainable in both elbows and tees in sizes from 1 in. to 10 in., inclusive.



Crane Elbows and Tees with Beveled Edges for Insertion in Welded Pipe Lines

Improvements in the Rogatchoff Crosshead

THE Rogatchoff Company, 1512 Latrobe Park Terrace, Baltimore, Md., manufacturers of the Rogatchoff adjustable crosshead has recently made an improvement in the design of this device. Instead of

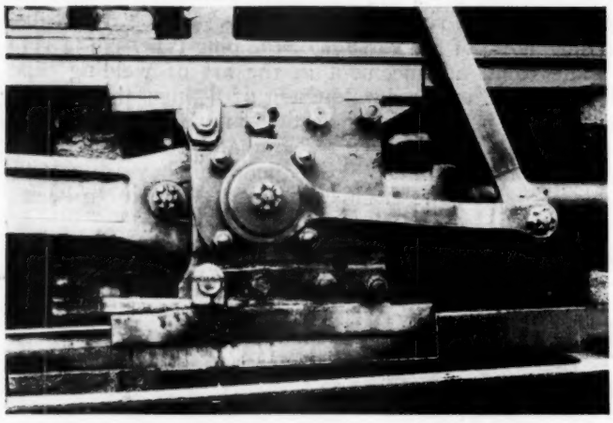


Details of the Crosshead Showing the Clamping Device for the Adjusting Wedge

using the adjusting screw or the rack-and-pinion devices for holding the wedge in any position, a clamp bolted to the side of the crosshead is now used for this purpose. The adjusting wedge is fitted with a stop lug for preventing the wedge from becoming loose in case the clamp nut should be left loose or the threads on

the nut or on the clamp bolt should become stripped in any manner.

As now made, the adjustment of crosshead shoes does not require the use of special wrenches, only one standard 1⅛-in. by 30-in. wrench being required to



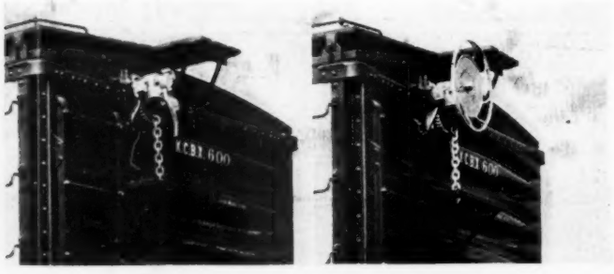
The Rogatchoff Adjustable Crosshead—Note the Adjusting Wedges and Clamp Locking Device

loosen the shoe bolts. When the bolts are loosened the adjusting wedge can be hammered into position taking up the vertical wear in the shoes. When the shoes are adjusted, the shoe bolts and clamp are tightened, the clamp locking the wedge in position.

Klasing Vertical Hand Brakes

A VERTICAL-WHEEL hand brake and a lever-type hand brake have recently been placed on the market by the Klasing Car Brake Company, 6646 Stony Island avenue, Chicago, which are practically identical with respect to the parts used, the wheel and its shaft being replaceable by the lever and its shaft or vice versa.

The brake wheel is 21 in. in diameter and has eight spiral spokes. The housing, drum, pinion and gear of



Left: The Klasing Lever-Type Brake—Right: The Vertical Hand-Wheel Brake

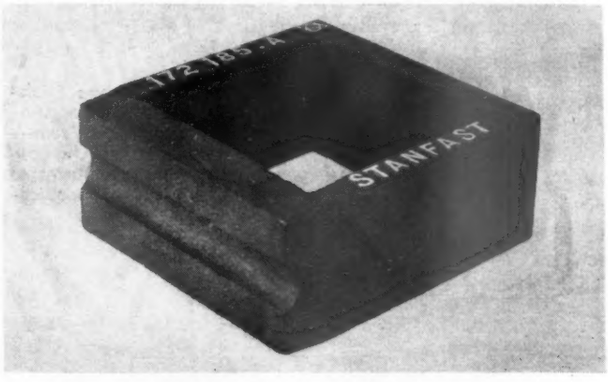
this brake is similar to the one employed with the Klasing horizontal-type hand brake described on page 1420D62 of June 20, 1928, issue of the *Railway Age* and, as is the case with the horizontal-type brake, the set and release device is located on top of the brake housing. The Klasing standard bell-crank fulcrum device is employed beneath the end sill of the car for transmitting the pull of the vertical brake rod to the horizontal brake rod as the brake is wound by the trainman.

The lever-type brake is identical in construction with that of the vertical hand-wheel type with the exception that a ratchet and pawl is incorporated on the pinion shaft within the mechanism housing. In all other respects the brake is identical with the horizontal-wheel and vertical-wheel brakes.

Standard Stanfast Spring Bands

IN the illustration is shown a cast-steel spring band, designated as the Stanfast by the Standard Brake Shoe & Foundry Company, Pine Bluff, Ark., which recently placed it on the market. The band requires no welding and is applied in the same manner as other cast-steel or welded bands.

The Stanfast bands are designed with solid corners and uniform thickness. Under test they show a tensile



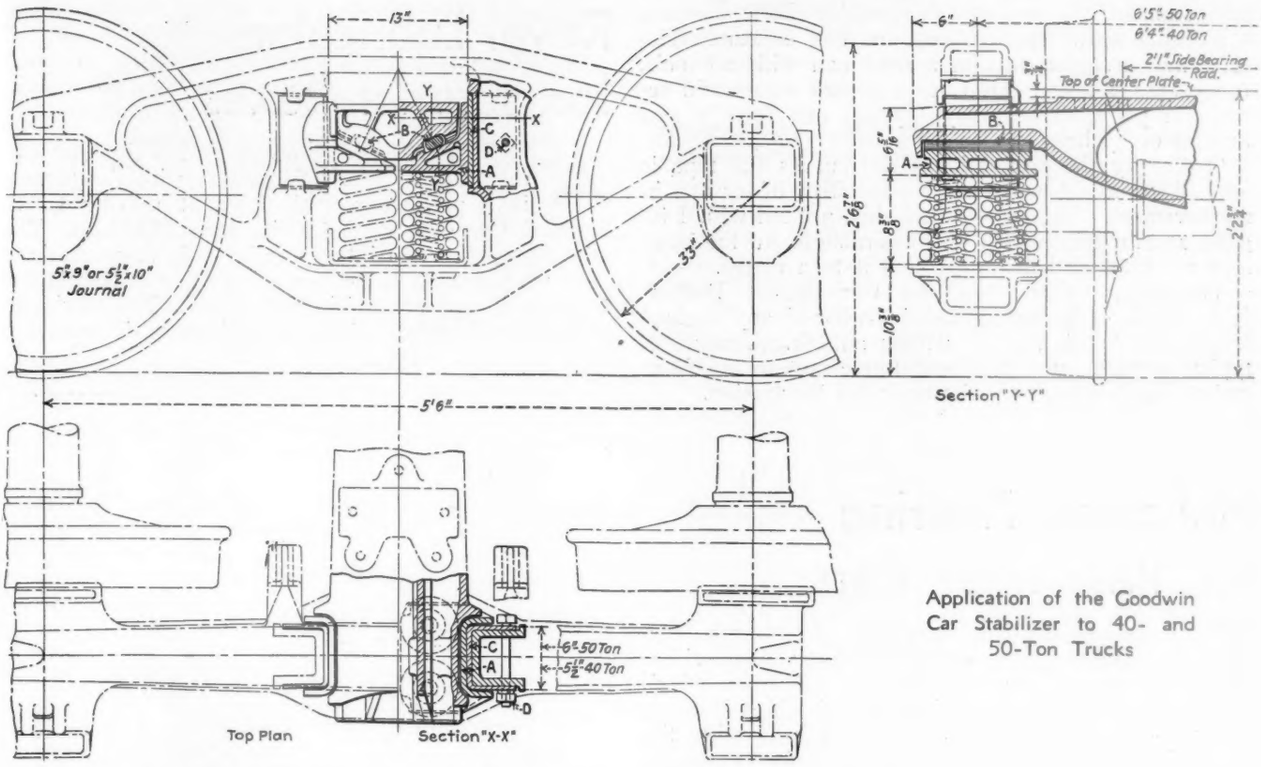
The Standard Stanfast Cast-Steel Spring Band Designed with Solid Corners and Uniform Thickness

strength of 70,000 lb. per sq. in. and an elastic limit of 36,000 lb. per sq. in. The bands are made in all sizes and thicknesses for application to light and heavy springs.

Goodwin Car Stabilizer

THE Standard Coupler Company, 420 Lexington avenue, New York City, has developed a truck-spring amplifier and retarder which prevents the accumulative roll of car bodies set up by low track joints and other track irregularities. It also reduces vertical oscillation to a negligible amount. The purposes of the device are to make operation safer, prolong the life of the equipment and to prevent damage to the lading.

Referring to the drawing, the truck-bolster end is supported on two rockers *B* each resting on a cast shoe *A* and the latter resting directly but independently on



Application of the Goodwin Car Stabilizer to 40- and 50-Ton Trucks

two or more truck springs. The planes of contact between the bolster and the rockers and also between the rockers and the shoes are at a substantial angle with the horizontal, giving a spreading action to each pair of shoes. This action causes the shoes to engage the columns frictionally. The pressure between the shoe and the column, for a given bolster load, is dependent on the angle of the bearing faces at the rocker, but is directly proportional to the load supported, whether the car is loaded or empty or whether the springs are free or over-compressed.

The rockers serve to reduce the friction between the truck bolster and the shoes so that the latter may readily adjust themselves to the column faces. To prevent wear on the column, which is part of a relatively large casting, removable liners *C* are provided. These liners are of such dimensions and so located that truck frames equipped with them will interchange with the present standard A. R. A. frames. Also, the stabilizer bolsters, complete with shoes and rockers, will interchange with A. R. A. bolsters. The use of the bolt or pin *D* is optional. Other means are provided to position the liner on the column.

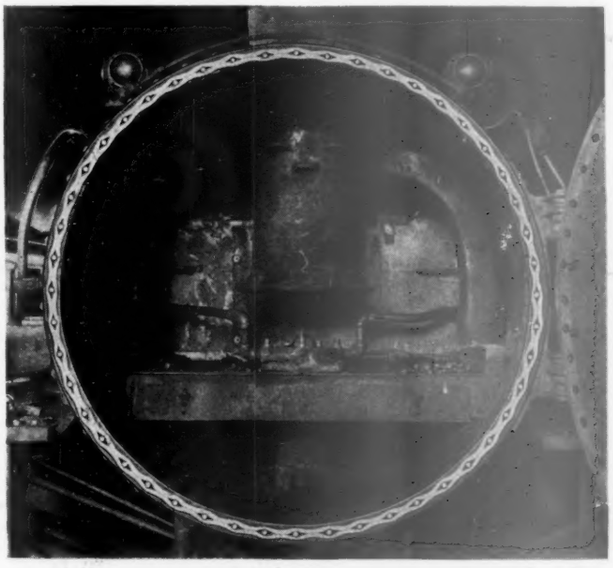
Among other purposes the arrangement is intended to eliminate wear occurring between the bolster and the column, which in the past has been rather excessive and out of proportion to other bearing points on these large truck castings.

The friction engagement between the shoes and liners (columns) aids the springs on compression and reduces recoil, with a resultant reduction in both the number of times and amount the springs are deflected. This ensures longer spring life and greater effective spring capacity.

This device is now applied to some hopper cars in coal service and thus far has met all expectations. These tests are being continued and other tests are contemplated. All tests conducted up to the present time show a marked reduction or virtual elimination of both car roll and vertical bouncing.

Garlock Button-Hole Asbestos Tape

THE Garlock Packing Company, Palmyra, N. Y., recently placed on the market an adaptation of asbestos tape for use on locomotive front ends and on flanged tanks of large diameters. The tape consists of parallel courses of Garlock folded asbestos wire-inserted cloth joined together by a single ply of bonding fabric. As shipped from the factory it contains no holes. The insertion of a knife blade between the paral-



The Garlock 616 Button-Hole Tape Applied to a Locomotive Front End

lel sections of the tape cuts the bonding fabric, forming a button hole which slips over the bolt or stud. The tape was designed so that a workman with no tools, other than a knife, can form a gasket which will remain in place, fit correctly, lay flat and form a seal around every bolt.

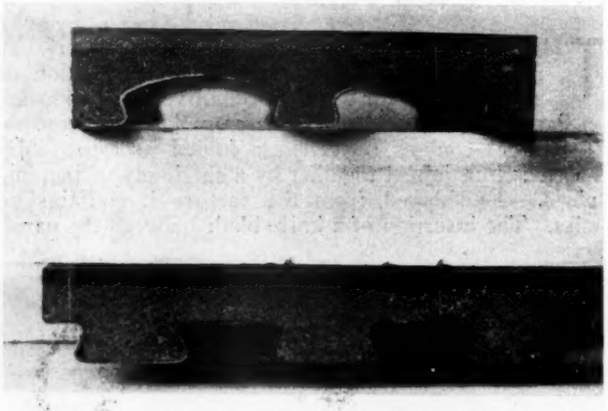
Ordinarily the button holes are cut as the tape is applied to avoid waste and possibility of errors in measurement. The tape is furnished printed with 1-in. graduation marks in case it is desirable to cut the holes at a work bench before applying it to a flange.

The tape, designated as the Garlock 616 Button-Hole Tape, is manufactured in coils of any desired length and in all regular widths and thicknesses. A typical application of the button-hole tape to the front end of the locomotive is shown in the illustration.

Halicomp Flooring for Passenger Cars

THE Hachmeister-Lind Company, Pittsburgh, Pa., has recently placed on the market a composition passenger-car flooring known as Halicomp which is an oxychloride cement, the base of which is magnesium oxide. Various inerts are mixed with the magnesium oxide to form the cement base. Pigments are used to produce the color desired.

Halicomp for use in passenger cars, is usually installed ½-in. thick over the top of the base, occasionally as thick as one inch. The usual practice is to install



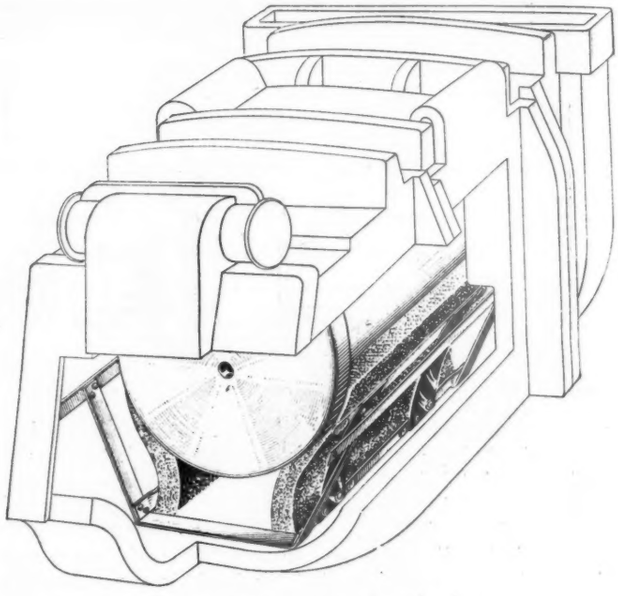
A Sectional View of Passenger-Car Flooring Showing the Application of Halicomp

a first coat of what is called Scratch-Coat Halicomp and the second or finish coat of any selected color. The covering capacity of Halicomp is three pounds of material per square foot of flooring laid ½-in. thick.

Some roads use one coat throughout in order to save labor cost. This is usually the top or finish-coat material. The usual base for Halicomp is Chanarch steel flooring or similar material for passenger cars. Grooved wood flooring may also be used as a base. The groove acts as a binder for the Halicomp. It is not necessary to paint Halicomp, since the nature of the material is such that when properly troweled it will produce a smoothly finished surface. When a particularly lustrous finish is desired, Halico Lustre Dressing is used which makes the floor easy to clean thereafter, using good linseed-oil soap for that purpose.

Royal Lubricators for Journal Boxes

A JOURNAL-BOX lubricator with flexible side members of fabric to contact with the journal is a product recently brought out by C. B. Royal & Co., 426 South Clinton street, Chicago. The lubricator consists of two fabric pads mounted in a light metal frame, the design of which can be adapted to all types and sizes of journal boxes. The lubricator is designed to eliminate the use of waste, it being ex-



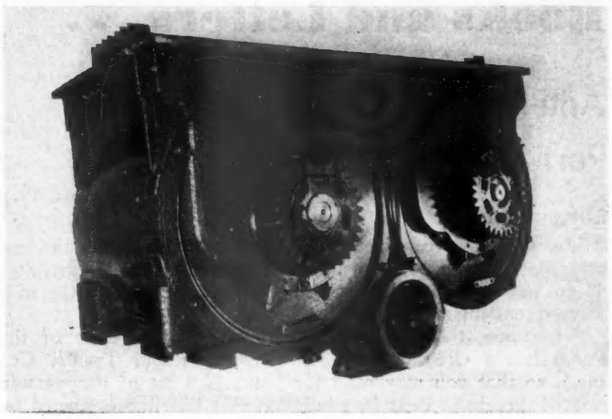
The Royal Journal-Box Lubricator

pected that sufficient oil will be fed to the journal through the pads which cannot be pressed or crushed against the journal. It is also expected that the lubricator will cause a reduction in running temperatures of the journal on account of the additional journal radiating surface made available by the elimination of the waste packing.

Westinghouse A. C. Locomotive Motor

THE Westinghouse type 425 motor illustrated, was built by the Westinghouse Electric & Manufacturing Company for installation on locomotives to be used in passenger and freight service on the projected Pennsylvania electrification between New York and Washington, D. C. Each armature has a continuous rating of 625 hp., which rating can be obtained over a speed range from 55 to more than 75 m.p.h. For shorter intervals, this rating may be exceeded.

In passenger service each locomotive will have one twin motor per axle, giving a continuous rating of 1,250 hp. per axle. The 2-C-2 locomotives with 3,750 hp. can handle a 1,000-ton train at speeds in excess of 90 m.p.h. The starting tractive force at 25 per cent ad-



The Westinghouse Type 425 Motor for Installation on Passenger and Freight Locomotives

hesion is approximately 56,000 lb. These locomotives will have the greatest concentration of power per axle of any yet built.

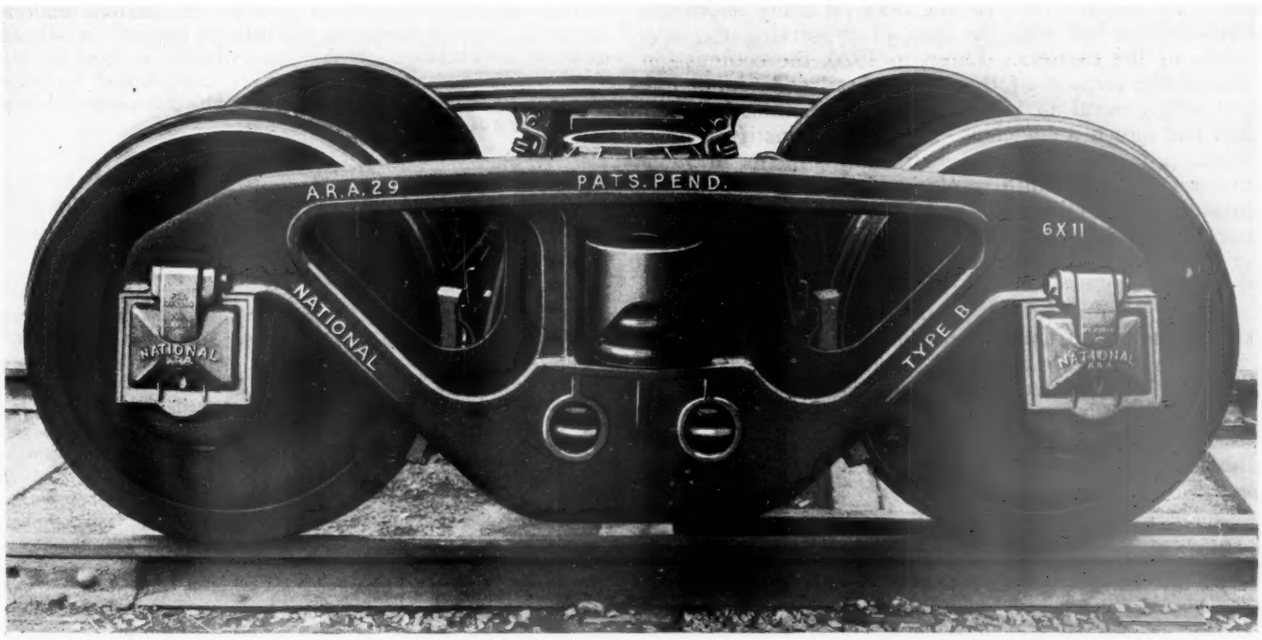
For freight service, a four driving-axle unit will be used with one motor per axle, giving a continuous rating of 2,500 hp. Two or more such units can be operated in multiple by one crew.

National Type B Freight-Car Truck

ONE of the most recent developments of the National Malleable & Steel Castings Company, Cleveland, Ohio, is the Type B freight car truck the principal features of which are reduced weight; greater strength in the side frames and bolster; ability to use brake rigging that eliminates the necessity of safety devices; quick-wheel-change features and increased spring capacity. In this truck, the side frame is considerably wider than in the conventional design. The spring plank is entirely eliminated, resulting in a substantial net saving in weight, and in order to provide the crosstie feature which the spring plank usually gives there are two large trunnions cast integral with each end of the bolster. These trunnions drop down through openings in the truck frame and tie the frames together at the center line of the journal thus reducing the tendency of the truck frames to roll and produce momentary high bearing pressures at the ends of the journal bearings. The safety angles in the Type B truck are attached to hangers suspended from the truck bolsters.

The elimination of the spring plank in this design has removed certain of the limitations on the design of the bolster both as to width and depth. For example, the bolster in the 70-ton truck is 14¼ in. wide and 17 in. deep. The bolster is the full width of the center plate and thereby serves as protection against breakage of center-plate flanges. The bolsters and side frames test considerably beyond the A.R.A. requirements for deflection and ultimate load. Due to the additional width and depth of the bolsters it is said that ultimate-strength tests indicate that failure occurs by the buckling of the compression members rather than by the tearing of the tension members, and that, after such failure has occurred at a load well in excess of A.R.A. requirements, the load can be reduced to an amount equal to the weight of a loaded car, after which the crumpled bolster still will sustain that load.

The spring group in the National Type B truck porvides, in the 70-ton design for example, 113,788 lb. capacity with the springs ⅛ in. from the solid. This spring group has the same weight as a group of seven conventional truck springs and uses the A.R.A. Class G spring which has 2⅛ in. of travel. The above spring capacity is based on two inches of this travel. The Class G spring has an inner coil which is ⅜ in. shorter than the outer coil so that in this truck the inner coils do not come into play until a load is thrown into the car. The bolster on the Type B truck comes into contact with the truck side frame after two inches of movement, or at a point where the springs are ⅛ in. from solid. This feature is expected to reduce the tendency



The Type B Freight-Car Truck Recently Developed by the National Malleable & Steel Castings Company

of the springs to take a permanent set and materially to decrease spring breakage.

In changing wheels on the Type B truck it is necessary only to remove the journal bearings, journal wedges and the brake-hanger pins, after which the bolster may be supported on blocks, the truck frames pulled off and the wheels rolled out. All other parts remain assembled in or attached to the frames and bolster. In case only one pair of wheels is to be removed the frames do not have to be taken off. They may be left on one pair of wheels and the bolster and, by spreading the frames at one end only, the other pair of wheels may be rolled out.

The wheel base of this truck in the 70-ton design is 5 ft. 6 in., which is the same as the 40 and 50-ton standard. The 40-, 50- and 70-ton trucks all use the same brake rigging. The brake-beam safety angles and the brake rigging are A.R.A. standard but the design of the truck lends itself to the use of special brake rigging in which the bottom rod passes through the bolster, which thus serves as the emergency means for supporting the brake beams and eliminating the use of brake-beam safety angles or other emergency supports. Where this is done the depth of the bolster is increased to avoid weakening the section. Because of the absence of a spring plank this can easily be done.

Seek 15 Per Cent Rate Increase

(*Continued from page 1186*)

again acted speedily and allowed general percentage increases. The percentage method was again followed when rates were reduced 10 per cent in 1922, in spite of the position taken by the Administration. President Harding had urged reductions in "basic commodities" and even made a personal call at the commission's offices while it was considering the matter, while Herbert Hoover, then Secretary of Commerce, testified before the commission in favor of a readjustment of the rate structure which would reduce rates on many important commodities but with the idea of preserving the revenues of the carriers. Later, in 1926, the commission denied the request of the western railroads for a five per cent general advance, taking the position that they had not shown a sufficient emergency to justify a horizontal advance, but in its own readjustments of rates under the Hoch-Smith resolution it has, in general, allowed the reductions to exceed the increases, and a 15 per cent increase in all rates would not restore the general rate level to where it was before the 1922 reduction.

There are now, however, eight members of the Interstate Commerce Commission who have become members since the 1922 rate case and seven who have been appointed since the decision denying the western roads a general advance. Commissioners Aitchison, Meyer, Eastman and Lewis are the ones whose experience on the commission dates back to the general cases of 1920 and 1922.

THE SOUTHERN PACIFIC has made arrangements with Hertz Drive-Ur-Self Stations, Inc., so that patrons destined to Pacific coast points may hire automobiles in advance and procure the car on arrival. Courtesy cards which eliminate the necessity of deposits are also provided patrons.

Books and Letters . . .

Anti-Railroad Bias on Part of a Railroad Bus Line?

PAOLI, PA.

TO THE EDITOR:

Your able and convincing editorials have given me the impression that the bus lines operating on the public highways do not pay their full share of the tax burden, and that the railways resent this as unfair.

Permit me, then, to present you with a time table of the Pennsylvania Greyhound Lines (Peoples Rapid Transit Co., Inc.), so that you may read for yourself a bit of propaganda printed therein.* Bear in mind that this bus line is owned by the Pennsylvania Railroad, a fact plainly stated in the enclosed time table.

In the presence of such an attitude, what do you expect us, the public, to do to aid the railroads in their "struggle" against unfair bus competition?

I don't know what you expect—and after reading this I have not the remotest idea what the railroads really want—but I can tell you what they'll get: Nothing.

J. A. RITTER.

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* The quotation from the bus line time table to which Mr. Ritter refers reads as follows: "THE PUBLIC'S INTEREST.—The unprincipled efforts of steam and electric railroads during the past year to destroy highway traffic of every sort has succeeded in arousing the justifiable indignation of the private automobilist, the public at large who use the motor buses, as well as the common carrier industry. These attempts, carried on behind a barrage of publicity that harps on the false statements that the motor buses are using the highways free of charge, are unregulated, and are ruining the road beds, has for its real purpose the stifling of competition of every sort. Motor buses carried only three per cent of the total highway passenger traffic of last year, the balance going to private automobiles. If the railroads succeed in their attempts to raise gasoline, license, and other taxes, it means that the burden will fall indiscriminately on the private motorists, and on the general public in the form of higher transportation costs."

New Books

Hubert Hermanns Techno-Dictionary (German-English-Italian). 432 Pages. 4½ in. by 6 in. Bound in Paper. Published by Hubert Hermanns, Berlin-Lichterfelde, Germany.

This is a convenient pocket-size technical dictionary in three languages prepared for the reader of foreign periodicals. The work is apparently designed to cover general technical subjects rather than specific industries, and it is not complete in railroad technical nomenclature. It does, nevertheless, at least aid toward an understanding of the more fundamental technical words in German and Italian, a service which few non-technical foreign language dictionaries vouchsafe.

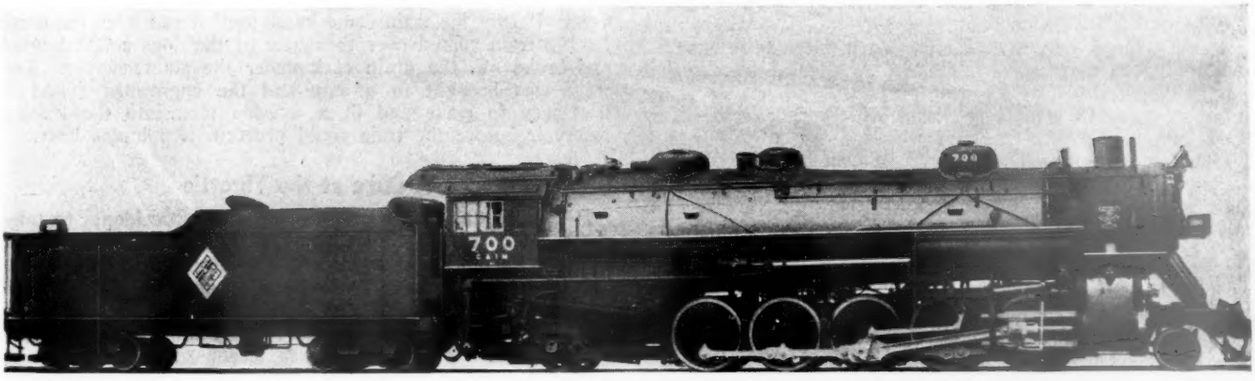
Lumber and Its Uses, Fourth Edition by Royal S. Kellogg. 378 pages. 8½ by 5½ in. Bound in cloth. Published by Scientific Book Corporation, 15 East Twenty-Sixth street, New York. Price $4.

The user of wood on the railways, through his association contacts and the reading of periodicals, has access to a large fund of information on the application and behavior of wood for the uses with which he is particularly concerned. For a more general knowledge of lumber and specific information concerning species, this book fulfills a definite need, although it contains little that has to do directly with the railways—ties for example receive but a bare mention and wood preservation is disposed of in a few pages. Its real value lies in the facts it presents on such matters as the physical properties, seasoning, paints, etc., and particularly on grading and American Lumber Standards. Of particular merit is a chapter on Commercial Woods, which briefly describes and catalogs the uses of 52 species of woods. Chapters on Planing Mills, Factory Uses and Lumber Operations have a more specialized appeal. This edition appears to have been fully revised to cover the advance in knowledge since the appearance of the third edition in 1924.

Odds and Ends Department Appears on Next Left Hand Page

LIMA
LOCOMOTIVE WORKS
INCORPORATED

LIMA Locomotives For The



Chicago & Illinois Midland

■ FOUR of these 2-10-2 type locomotives have been built by Lima Locomotive Works, Incorporated, for the Chicago and Illinois Midland.

■ The design was developed to meet the specific operating conditions encountered on this railroad.

LIMA LOCOMOTIVE WORKS

Incorporated

LIMA OHIO

Odds and Ends . . .

Fifty-Fifty

"Life's a queer business," soliloquized the stout suburban dweller, as he hastened stationwards. "Either I'm standing on the platform when the train puffs in, or I puff in while the train is standing at the platform."—Railway Gazette.

Miss Zwergel of the White Pass & Yukon

The Baltimore & Ohio Magazine, in its annual women's number, has discovered that Miss Lida Zwergel of the White Pass & Yukon, a 3-ft. gage railway of Alaska, is the first and only woman to be appointed eastern passenger agent of any railroad. During her eight years in that post at Chicago, the passenger business of the railroad has increased 300 per cent.

You Pays Your Money and Takes Your Choice

A blanket increase in freight rates is the solution of the present financial dilemma of the carriers favored by the Eastern railroad executives.—New York Herald Tribune.

No "blanket increase" is intended. A "blanket increase," it was said, might defeat its own purpose by diverting traffic from railroads to competing forms of transportation.—New York Times.

The New York Sun finds two of its contemporaries contradicting each other. And we might add, for the benefit of those who are still confused, that whether the increase is a "blanket" one or not, it will probably include rates on blankets.

From Hogger to Movie Actor

William H. Graham, who retired as an engineman for the Chicago, Rock Island & Pacific two years ago, is probably the only man who spent practically his entire active life railroading, and then, so to speak, graduated into the motion picture game. When he became a pensioner in 1929, after 43 years of service, Graham moved to California, where his granddaughter, Marguerite Churchill, has starred in half a dozen productions. While visiting the studios where "The Big Trail" was in the course of production, a director spied Graham and pronounced him a perfect fit for the part of the trapper. Since that initial performance he has played similar parts in a number of other pictures.

Fourscore Annual Passes

While they may be surpassed in quantity by other collections of railroad passes, several groups discovered by the Delaware & Hudson are probably the oldest in existence. Merritt Clark, treasurer of the Rutland & Washington (now part of the D. & H.), held no less than 80 annual passes for 1865. This collection was found, framed and hanging on the wall of a clothing store at Rutland, Vt. Shortly after that discovery 95 annual railroad and steamship passes issued to Ellsworth Vrooman for 1883, when he was manager and general passenger agent of another D. & H. subsidiary, the Schoharie Valley, were found on display in the lobby of the Detroit hotel at St. Petersburg, Fla.

A Mechanical Officer's Hobby

The hobby pursued by Henry B. Bowen, chief of motive power and rolling stock of the Canadian Pacific, during his spare hours is not far removed from his every day work, in that hobby and life work both deal with machines. But in another sense the two are far apart, for the hand that runs machine shops by scratching a pen in the day time itches for the control of a lathe after working hours. In the basement of his home in Montreal Mr. Bowen has what is considered to be the most complete private machine shop in that city. Here he spends hours of leisure time, and his principal product is model stationary and marine engines. And his marine engines have been put to practical use. His three sons operate a fleet of five model steamboats on Echo Lake in the Laurentian mountains, Mr. Bowen's summer home. The latest product of the Bowen shop is a 4,000-r.p.m. marine engine which is only 4 in. in height. One of the devices in the shop is a milling machine which Mr. Bowen designed and built. In this shop have also been evolved a number of tools which are in regular use in the railway's shops.

It Took More Than Pepper to Stop This Dog Fight

Rounding a curve west of Bernardsville, N. J., Engineman Burke on a Delaware, Lackawanna & Western electrified suburban train saw two dogs fighting on the track ahead. He blew his whistle and the dogs made for cover. Just before the train reached the spot, however, the dogs apparently simultaneously decided that their differences had not been finally settled. They climbed back on the track and commenced gnashing at each other for the second round of their fight. Before the train could be stopped it ran over the dogs. As the train passed over them one of the dogs collided with, and broke off, the drain cock under the air reservoir. The train was brought to a stop and the engineman found it necessary to make and fit a wooden plug into the leaking reservoir before the train could proceed, 17 minutes later.

A Duke at the Throttle

It is not unusual for kings, princes and presidents to take short rides in locomotives for diversion, or publicity. The Times (London), however, in discussing the status of the Spanish nobility under the new Republican regime, draws attention to one grandee who has made of railroading a regular occupation. "The Duke of Saragossa," says the Times, "descendant of the brave leader of the Arragonese during the famous siege, is a nobleman who for the last decade or more has taken his regular turn of duty as engine-driver on the Northern Line and had the sad honor of driving the Queen's train to the frontier. He is Don José Maria Mencos Rebolledo de Palafox Expeleta y Guzman, rather a mouthful for the foreman who calls the roll when the engines come out of the shed to receive their crews." Not long ago, so writes a correspondent to the Times, at the celebration of the opening of a new railway between France and Spain, King Alfonso took occasion to introduce President Gaston Domergue of France to the engineman of the official train, enjoying his surprise that the engineman was "one of my friends, the Duke of Saragossa, a noble of Spain."

Supervisors of Caretakers of Potatoes

When the Aroostook county, Me., potato-growers decided to appoint two supervisors to oversee and co-ordinate the work of the caretakers, whose business it is to keep shipments of potatoes from freezing in cold weather, it lost the advantage of obtaining free railroad transportation for the supervisors by giving them titles more high-sounding than "head caretakers." The Interstate Commerce Commission has just ordered the Bangor & Aroostook to cancel tariffs according supervisors the same privilege of free transportation that has long been accorded the caretakers. The commission held that they do not come within the exceptions to the general prohibition against free railroad transportation in the interstate commerce act. These allow passes to "necessary caretakers of livestock, poultry, milk and fruit." The commission says in its report that since November, 1906, it has construed the word "fruit" as embracing perishable vegetables including potatoes, but the question whether further exception should be made to the statute "is one for legislative authority and not for us to decide." Commissioner Lee, dissenting, said that if the commission has correctly construed potatoes to be fruit he was of the opinion that if caretakers have been found to require supervision they could be included in the term "necessary caretakers."

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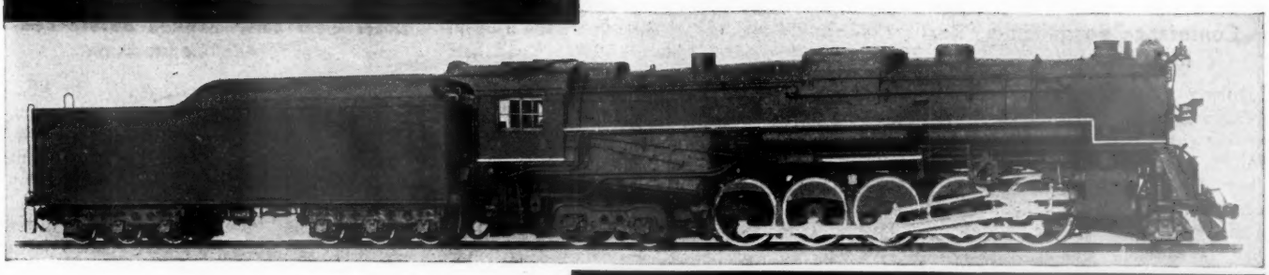
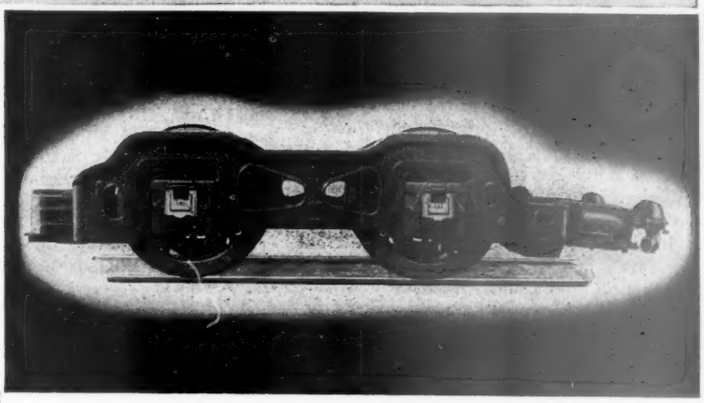
YOU CAN ALWAYS TELL





WHEN A BOOSTER engine starts your train out of a station, you feel the increased starting power. You think it is a "double header", but it isn't.

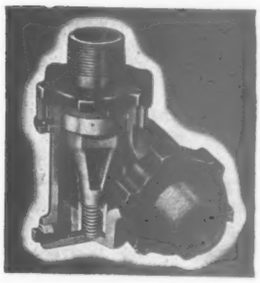
It's only the little unseen engine applying its power to the trailing wheels. It changes a Pacific type locomotive into a Consolidation just in starting. Then the big boiler "keeps them going".

This means passenger trains on time.

It means freight trains with more tons, and more dollars per train.

It means lowered locomotive maintenance due to the ability of a Booster locomotive to do the job of a non-Booster locomotive having another pair of drivers. This saving often amounts to several cents per mile and in itself is enough to justify a Booster application program.

THE FRANKLIN SLEEVE JOINT Assures a full area opening and unrestricted passage for air, steam and oil.



FRANKLIN RAILWAY SUPPLY CO., INC.

NEW YORK CHICAGO ST. LOUIS SAN FRANCISCO MONTREAL

NEWS

Conference Board Finds "Real" Railway Wages Higher

During the last quarter of 1930, both average hourly and average weekly real earnings of the railroad employees of the United States were higher than in any other recorded period during the last seventeen years, according to a tabulation of statistics made by the National Industrial Conference Board in its recently published report on "Wages in the United States, 1914-1930." The computations are based on data gathered by the Interstate Commerce Commission and relate to the employees of Class I railroads.

Average actual or money hourly earnings of all wage-earners employed on Class I railroads were slightly higher in 1930 than in 1929. The increase in average hourly earnings since 1923 amounts to 10.2 per cent. This increase does not necessarily denote a higher wage rate but may reflect merely an increase in the employment of more efficient workers or a decline in the employment of less efficient workers.

The situation was not quite so favorable in 1930 as to average weekly earnings, although the reduction, on the whole, was relatively slight as compared with the decline in the earnings of wage-earners in other lines of economic activity. Average weekly earnings in 1930 were about $1 less than in 1929, but only three cents less than in 1928. Compared with the year 1923, average weekly earnings in 1930 showed an increase of $1.10, or 3.7 per cent. The decrease in average weekly earnings between 1929 and 1930 was due to the decline of 2.1 hours in the average number of hours worked per week. The average actual work-week in 1930 was the lowest recorded in the seventeen year period ending in 1930 and was even lower than that of 1921, the previous depression period.

The favorable situation of the railroad wage-earners is more clearly shown by a comparison of their real earnings, that is, their actual money earnings expressed in terms of the cost of living or the purchasing power of the dollar. Taking 1923 as a base, it is found that real weekly earnings in 1930 were 7.9 per cent above the 1923 level, as compared with 6.9 per cent in 1929.

Although the hourly earnings of all classes of railroad wage-earners were higher in 1930 than in 1929, the weekly earnings showed a slight falling off due to the fewer number of hours worked. The highest weekly earnings were those of road passenger engineers, which were $65.13 in 1930 as compared with $66.35 in 1929. Road freight engineers earned a weekly average of $60.51 in 1930 as compared with $64.11 in 1929. Road passenger conductors earned a weekly average of $60.44 in 1930 as compared with $60.96 in 1929. The lowest average weekly earnings were those of unskilled shop labor, which were $17.47 for 1930 as compared with $18.14 for 1929.

In the first quarter of this year the figures, just received and computed by the Conference Board, show that there has been but slight change in the actual earnings of railroad wage-earners as compared with the last quarter of 1930. Hourly earnings increased one-tenth of a cent while weekly earnings decreased 25 cents, the latter indicating lessened work time. Real hourly earnings, on the contrary, due to the decreased cost of living, increased by 5.3 per cent and real weekly earnings by 3.7 per cent.

Motor Transport Meeting in October

The annual meeting of the Motor Transport Division, American Railway Association, will be held in Chicago on October 27 and 28, it was decided at a meeting of the General Committee in Chicago on June 17.

U. P. Starts Rail-Highway L. C. L. Service in Nebraska

Through a subsidiary company, the Union Pacific Stages, Inc., the Union Pacific and the St. Louis & Grand Island have inaugurated between Nebraska stations a co-ordinated railway and highway service for l.c.l. freight. The service includes pick-up and delivery by motor trucks and intercity transportation by rail. The kind of operation is similar to that inaugurated by the Union Pacific Stages on the lines of the Oregon-Washington Railroad & Navigation Co. in Oregon. The Oregon service was established on April 14, and reports for the remainder of that month indicated substantial progress.

The new service is designed to regain for the Union Pacific the traffic which, in large part, has been diverted to truck lines. The first local freight tariff of the Union Pacific Stages, Tariff No. N-1, became effective in Nebraska on June 12, and it provides for rates which are approximately the same as those charged by competitive trucking companies. In addition to the pick-up and delivery service there has been an improvement also in railway service. For example, l.c.l. freight received at the Union Pacific freight house at Omaha, Neb., by 5 p.m. is delivered at main-line points as far west as North Platte, Neb., by 7 a.m. the following morning.

Draft Gear Case Argued Before Federal Trade Commission

Oral arguments were heard by the Federal Trade Commission at Washington, D. C., on June 11 in the case in which the commission had issued a complaint against the Waugh Equipment Company and individual officers of Armour and Company and the Armour Car Lines charging unfair methods of competition in the sale of draft gear to railway companies by promising or threatening the increase or diversion of Armour traffic. Argument in the similar case against the Mechanical Manufacturing Company and officers of Swift & Company, set for the following day, was deferred because of the absence of counsel for the Mechanical company in Europe.

The case against the Waugh company was argued for the commission by E. F. Haycraft, who asked the commission to issue a "cease and desist" order, while the argument for the defense was presented by E. M. O'Bryan. Mr. Haycraft said that stock in the Waugh company had been given to the Armour officials, after the company had been unable to make much headway in the sale of its draft gear, but that with the assistance of the solicitation of the Armour traffic officials, through the traffic departments of the railways, its business had increased until in 1930 it was the largest seller in the country of draft gear for new cars. He cited many examples from the testimony taken at hearings which he said showed that increases or decreases of Armour tonnage followed on various railways after they had been solicited to purchase Waugh draft gear, depending on whether the railways placed orders; and that this method of doing business was unfair to competitors and tended to create a monopoly.

Mr. O'Bryan, on the other hand, attributed the increase in the company's business to improvements in its draft gear and to the knowledge of the improvement which was disseminated among railway men as the result of the American Railway Association draft gear tests. He said that F. W. Ellis, of the Armour Car Lines, had merely used his friendly efforts to assist in introducing the device where it had been difficult for various reasons to interest mechanical officials in it, and that the only customers were railway organizations well equipped with experts who knew what they were buying. He said that all railways were enjoying Armour traffic when the Waugh company was organized and that the fluctuation in the volume of this traffic from time to time proved nothing because it was influ-

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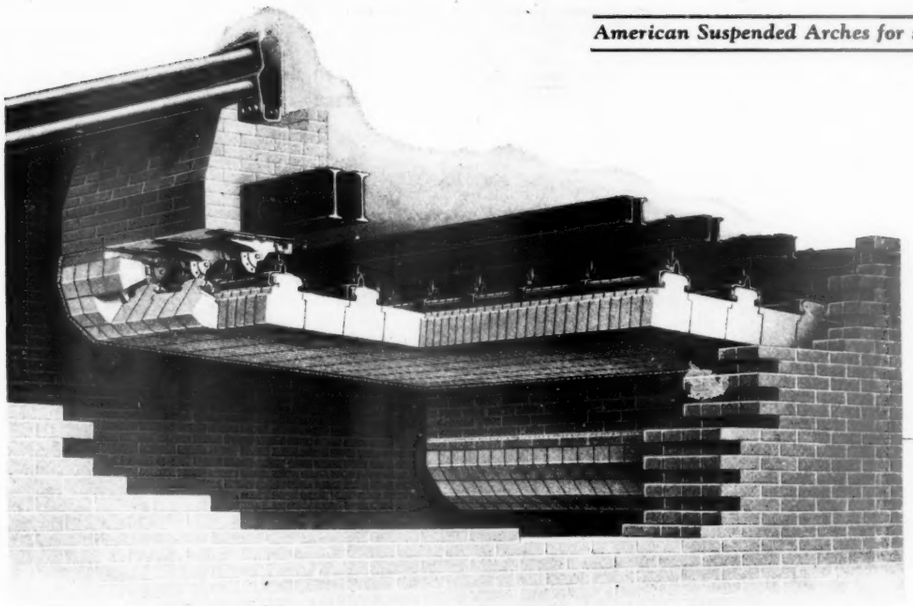
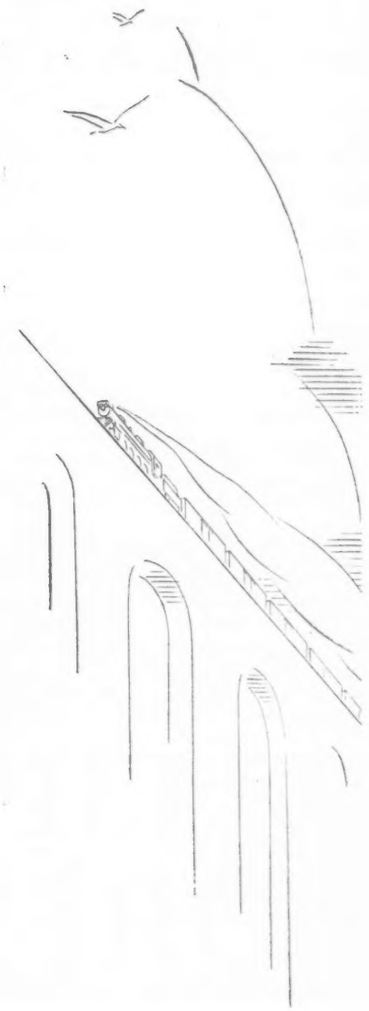


American Suspended Arches for stationary boilers

ALL INDUSTRY HAS BENEFITED

from American Arch *Developments*



THE PIONEERING SPIRIT that for 21 years has kept American Arch Company in the fore-front in locomotive Arch development has won for it a comparable place in general industry.

Scarcely an important steel company but has an American Arch heating furnace roof—the first such roof that could be insulated.

Other American Arch Company developments are the sectionally supported air-cooled side wall for boilers and oil stills and the suspended boiler Arch.

The combustion knowledge of the experienced staff of American Arch Company engineers is now serving general industry as it has long served the railroads.

AMERICAN ARCH COMPANY

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NEW YORK CHICAGO

enced by so many conditions. The principal point he emphasized was that the large increase in the Waugh business did not begin until 1928, after an improved draft gear had been adopted, and said that the company had previously not been able to "break in" on certain roads until there was some change in the mechanical personnel; and he further argued that it was not proper to make comparisons of the business of various draft gear manufacturers on the basis of gears supplied for new cars, because so many more are used for maintenance.

Mr. Haycraft, in rebuttal, said that the report of the draft gear tests was not made until 1929, and that it was still only tentative; also that the detail testimony showed that Mr. Ellis had gone much farther in seeking to use traffic influence than merely to obtain a hearing for representatives of the Waugh company.

Milwaukee to Drop Two Cent Fare

The Chicago, Milwaukee, St. Paul & Pacific, which placed two-cents-a-mile passenger fares in effect on certain lines in January, will suspend these rates on July 1. The low rate has been in effect on certain divisions in Wisconsin, Minnesota and Iowa.

New York State Drive Against Illegal Bus Operation

The Public Service Commission of New York has inaugurated a drive designed to stop the illegal operation of motor coach lines in that state. This move on the part of the Commission followed the enactment at the last session of the New York Legislature of a law which clarified and definitely determined the jurisdiction of the Commission over bus lines.

S. P. Extends Delivery Service

The Southern Pacific Motor Transport Company, subsidiary of the Southern Pacific Lines in Texas, is extending its pickup and delivery service for l.c.l freight to points in the Lower Rio Grande Valley and to stations on the transcontinental line between Del Rio, Texas, and El Paso. The pickup and delivery service is to be extended ultimately to all points on the system where there is motor truck competition.

Railway Employment in April

An increase of 12,091 employees on the payrolls of the railroads in April as compared with March is reported by the Interstate Commerce Commission, following an increase of 2,821 in March as compared with February. The total as of the middle of the month of April was 1,331,405, a decrease of 15.34 per cent as compared with April, 1930, and of 20.06 per cent as compared with April, 1929. The decrease as compared with last year was somewhat greater than it was in March, but there have now been two months of small increases following a succession of decreases each month since last May. The number of maintenance of way employees in April was 22.84 per cent less than in April last year, while the number of train and engine service employees showed a decrease of 13 per cent.

Commission Merchants Ask to Be Exempt from Rate Increase

An appeal to the executives of the principal railroads to except fresh fruits and vegetables from the proposed general rate advance of 15 per cent is made in a letter addressed to them by Robert F. Blair, president of the National League of Commission Merchants. Although recognizing the "serious need for additional revenues for the carriers," Mr. Blair said that the needs of the roads are less pressing than those of the growers and producers.

Injunction Against Increased Freight Rates

The Commonwealth of Pennsylvania has proceeded in the Dauphin County Court (Harrisburg) to secure injunctions against proposed advances in intrastate freight rates filed to go into effect on July 1, by the Central of New Jersey, the Erie, the Pennsylvania, the Delaware & Hudson, the Delaware, Lackawanna & Western, the Reading, the New York Central, the Lackawanna & Wyoming Valley and the Wilkes-Barre & Hazleton.

New Haven Considering Air Service

The New York, New Haven & Hartford is prepared to consider the inauguration of a seaplane passenger service in co-ordination with its trains operating between New York and Boston, Mass., if there develops a public demand for such service, according to a recent statement by officers of that road. The statement of the New Haven further said that there was no intention of starting the seaplane service now but that it was receiving consideration pending a definite demand for it.

Fined for Illegal Storage

In the United States Court at New York City on June 15, the New York Central pleaded guilty on charges of failing to collect storage on flour received at New York for various consignees in 1929 and 1930, and was fined $15,000. Indictments had been found on March 10 last, 30 counts, charging the granting of storage at Sixtieth street station, without pay; the consignees being three trucking companies and numerous baking companies. Bills wrongfully thus remitted ranged from $59 to $435 per car. On assurance that the offenses would not be repeated, 15 counts of the 30 charged, were dropped.

Barge Service Between St. Louis and Peoria

Barge line service between St. Louis, Mo., and Peoria, Ill., by way of the Mississippi and Illinois rivers, was opened on June 12 when the towboat "General Ashburn" pushing a 2,000-ton barge of the Inland Waterways Corporation, loaded with 457 tons of freight, sailed from the municipal dock in St. Louis for Peoria. The new $400,000 river and rail terminal in Peoria was dedicated on June 15. Speakers at the dedication included Secretary of War Patrick J. Hurley and Major General T. Q. Ashburn, chairman of the board of directors of the Inland Waterways Corporation.

Freight Traffic in April

Freight traffic moved by Class I railroads in April amounted to 28,709,632,000 net ton-miles, according to reports compiled by the Bureau of Railway Economics. Compared with April, 1930, this was a reduction of 17.7 per cent, and it was a reduction of 25.1 per cent under April, 1929. The Eastern District reported a reduction of 17.4 per cent from April, 1930; the Southern, a decrease of 18.2 per cent, and the Western, 18.1 per cent.

Freight traffic handled in the first four months of 1931 amounted to 116,049,854,000 net ton-miles, a reduction of 17.8 per cent under the corresponding period in 1930, and of 25.6 per cent under the same period in 1929.

Sections 15a and 20a Not Applicable to Bridge Companies

The Interstate Commerce Commission has issued a decision finding that the sections of the interstate commerce act relating to the recapture of excess net railway operating income and to the regulation of security issues of railroad carriers are not applicable to the Keokuk & Hamilton Bridge Company or to the Atchison & Eastern Bridge Company. The report says that, from the evidence, the two corporations dealt with in this report are shown not to be themselves carriers, although owning important properties used in the operations of carriers subject to the act.

Illinois Central Tax Basis Reduced

The United States court for the eastern district of Illinois at Danville, on June 13, decided in favor of the Illinois Central in its suit to secure lower taxes on property in 56 of the 102 counties of the state. Judge Walter C. Lindley entered the order, which directs that the railroad property be assessed on the basis of 46.5 per cent of the valuation instead of the 60 per cent rate which some of the counties have levied. The railroad was directed to pay the several counties the difference between the taxes already paid and the amount of taxes due under the court's ruling. Judge Lindley dismissed an injunction which had restrained the counties from collecting more than one-half of the taxes assessed.

Pacific N. W. Shippers' Board

In the territory of the Pacific Northwest Advisory Board, it is estimated that the shippers' requirements for the third quarter will be 246,280 cars as compared with 278,165 carloads actually moved in the third quarter of 1930. Among the products that will show increases are cement, dairy products, fish, furniture, livestock, paper products, poultry, sheep, sugar and fresh vegetables. Of the decreases, lumber will account for nearly two-thirds, while fresh fruit, miscella-

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More Mileage Between Renewals

HUNT - SPILLER
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THE satisfactory performance of HUNT-SPILLER *Duplex Sectional Packing* in the cylinders of modern power is attracting the attention of supervisors of mechanical departments.

Its ability to withstand the increasing frictional wear created by high superheat temperatures and heavy pistons has solved one of the major problems of today.

Comparison of performance reports shows a big increase in mileage between renewals. Naturally this means fewer leaks and a saving in fuel consumption as well as a reduction in maintenance costs.

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Air Furnace

neous merchandise, coal and coke, grain and flour will also show decreases. The greatest gain is to be made in fresh vegetables, of which 8,988 cars will probably be shipped, or 2,127 more than a year ago.

Southeast Shippers' Board

The Southeast Shippers' Advisory Board, which held its regular meeting at Atlanta, Ga., on June 12, reports the anticipated volume of shipments of various commodities in the third quarter of the year as follows: Increases: gravel, etc., 12 per cent; peaches, 50 per cent; all fresh fruits, 18; furniture, 5 per cent. Decreases: Lumber, etc., 10 per cent; coal, 15 per cent; fertilizer, etc., 23; grain, etc., 9; cotton, from storage to mills, 10; cotton seed, 8 per cent.

In the following commodities no change is expected: Brick, clay, etc.; iron and steel, watermelons, potatoes and other fresh vegetables, sugar, syrup, etc., machinery, petroleum. Other industries reporting show small changes.

Group Insurance For G. R. S. Employees

The General Railway Signal Company has contracted with the Metropolitan Life Insurance Company, New York, for life and accident insurance, under a group policy, for the benefit of its 1,400 employees, including not only those in the shops at Rochester, N. Y., but also those in the general office at New York City and in the G. R. S. branch offices. The aggregate insurance is approximately $2,500,000 life and the same sum on accidental death and dismemberment, the whole being supplemented by sickness and accident insurance. The employer and employees jointly share the cost.

The visiting nurse organization of the Metropolitan Company will be available to insured employees.

Safety Program for July

L. G. Bentley, chairman of the Committee on Education of the Safety Section, A. R. A., in Circular No. 302, proposes that safety committees—and, in fact, "all railway officers and employees of all departments"—shall in July pay special attention to that item of the accident records which is entitled "Flying and Falling Objects, and Material Dropped or Thrown." Under this head, the Interstate Commerce Commission in its accident bulletin for 1929 reports 18,976 employees injured; accidents such as: handling rails, ties, bridge timbers, etc.; handling freight or supplies; handling baggage, mail or express; coal, coke or other material falling from cars or tenders; collapse or fall of objects; flying particles, and a half dozen others.

There are two remedies: place and handle material so that it will not fall; educate workmen to refrain from working underneath places from which material is likely to fall.

The bulk of the circular consists of 18 suggestions. In addition to those which are somewhat obvious, there is one suggesting the use of signs reading "WORKMEN OVERHEAD" and one that safety shoes be worn by workmen subject to foot injuries. Shoes that give good protection to the feet have prevented many mashed and broken toes.

Western Coach Lines Reduce Rates

Representatives of 10 large motor coach lines operating in the west and middle west agreed at a meeting in Kansas City, Mo., on June 13, to reduce transcontinental passenger fares, in some cases as much as 20 per cent, to meet an expected reduction in similar railroad fares. According to H. H. Morgan, vice-president and general manager of the Pickwick-Greyhound lines, representatives of the motor coach companies believe that the proposed rates are too low, but are necessary to meet competition. Among the lines represented at the Kansas City meeting, according to press reports, were the Missouri Pacific Transportation Company, a subsidiary of the Missouri Pacific; the Southwestern Transportation Company, subsidiary of the Cotton Belt; the Interstate Transit Lines, a subsidiary of the Chicago & North Western and Union Pacific, and various units of the Greyhound Lines.

Joint Use of Rails Between Torras and New Orleans

A hearing on the application of the Louisiana & Arkansas and the Missouri Pacific for the approval of a contract whereby the two roads would make joint use of the line between Torras, La., and New Orleans, and would build a bridge over the Mississippi river at Baton Rouge, was held at the latter city on June 5. Previous hearings were held in January and February prior to the signing of a contract, while the present hearing was held at the request of the Illinois Central for the purpose of permitting Illinois Central attorneys to cross-examine witnesses on the bridge contract. The hearing is primarily for the purpose of securing testimony as to the part which the Louisiana Highway Commission proposes to play in the construction of the bridge. The highway commission and the applicants had thought to have a copy of this contract inserted in the record of the case, but the Illinois Central objected unless it could have opportunity to cross-examine witnesses.

Pacific Traffic Association

The Pacific Traffic Association will hold a series of special meetings, commencing July 28, to discuss the "National Transportation Problem." Papers will be submitted by traffic men representing the railroads, steamship, motor truck and aviation interests. The meetings will be held in the Transportation Club room of the Palace Hotel, San Francisco, Cal. On July 28 the subject will be "What the Shippers Expect of the Transportation Companies"; on August 25, a paper by H. C. Hallmask, assistant general freight traffic manager of the Southern Pacific; and on September 22, motor truck and highway transportation problems will be discussed. On August 13 a paper outlining the problems of the aviation industry will be submitted by Major Burdette A. Palmer, chairman of the Aviation committee of the association. On October 27 papers will be submitted dealing with steamship and inland waterway problems. The evening of November 24 will be devoted to criticism and rebuttal while suggested solutions will be submitted.

April Locomotive Shipments

April shipments of railroad locomotives from principal manufacturing plants, based on reports received by the Department of Commerce, totaled 15 locomotives, as compared with 10 in March, and 97 in April, 1930. The following table shows shipments and unfilled orders of locomotives for April, 1930, and 1931, the 1930 totals and totals for the first four months of the two years.

Railroad Locomotive Shipments

Year and Month	Domestic Total	Domestic Steam	Domestic Electric	Foreign Steam	Foreign Electric
1931, April	15	12	2	1	..
Total (4 months)	56	37	18	1	..
1930, April	97	94	..	3	..
Total (4 months)	284	266	7	8	3
Total (year)	763	706	33	17	7

Unfilled orders, end of April

Year and Month	Domestic Total	Domestic Steam	Domestic Electric	Foreign Steam	Foreign Electric
1931, April	80	69	..	11	..
1930, April	469	417	45	3	4

Allegheny Shippers' Board

The estimates brought together at the regular meeting of the Allegheny Shippers' Regional Advisory Board at Uniontown, Pa., on June 11, indicate that shippers in that region will, during the third quarter, require about 12 per cent fewer cars than were used in July, August and September of 1931.

Increases expected are: Grain, 10 per cent; fresh fruits, 272 per cent; potatoes, 123; fresh vegetables, 200; agricultural implements, 17; paper, etc., 9; brick, 13; plate glass, 28 per cent. The large percentages mentioned indicate a normal condition of moisture this year, as compared with the drought in 1930.

Decreases are expected as follows: Live stock, 25 per cent; coal and coke, 10 per cent; gravel, etc., 21; lumber, etc., 34; petroleum in tank cars, 11; iron and steel, 13; machinery and boilers, 17; cement, 21; brick and clay, 21; lime, etc., 31; fertilizers, 17; canned goods, 21 per cent.

The place selected for the next meeting is Pittsburgh, Pa., and the date September 17.

Tariffs Must Show Routing

The Interstate Commerce Commission has announced in a memorandum that it will insist by January 20, 1932, on compliance by carriers with a provision in its tariff circular 20, which has been postponed at request of the carriers, that all railroad rate tariffs shall contain the routing over which the rates apply, stated in such manner that the routes may be definitely ascertained. This may be accomplished by providing that the rates in the tariff apply only over the routes specifically shown therein, or by providing

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that they apply by all routes made by use of the lines of the roads parties to the tariff except as otherwise specifically provided.

The commission expects the carriers to proceed as promptly as possible to revise their tariffs to provide routing in compliance with the provisions of the rule. For many years it has observed as a rule of tariff construction the principle that where tariffs provide no specific routing the rates are applicable over all reasonably direct routes composed of the lines of all carriers parties to the tariffs, but numerous controversies have arisen from time to time in regard to the applicable routes.

Sir Henry W. Thornton Honored

Sir Henry W. Thornton, chairman and president of the Canadian National, was honored on June 15 at Providence, R. I., at the 163rd commencement of Brown University, when an honorary degree of Doctor of Laws was conferred upon him, in recognition of "achieving in sixty years a quantity and quality of useful accomplishment such as would constitute a sufficient life work, not for one man, but for many men."

Today's honorary degree was the third that has been received by Sir Henry, the others being Doctor of Laws from Syracuse University and Doctor of Science from the University of Pennsylvania.

The following citation was read by President Barbour in making the presentation of the honorary degree to the Canadian railway executive:

Sir Henry Worth Thornton, graduate of St. Paul's School and of the University of Pennsylvania, choosing as his sphere of study and of activity the world of railroad transportation, first serving great railway systems in America, steadily rising in responsible railway engineer and administrative positions until appointed general-manager of the Great Eastern Railway in England in 1914, sharing in the control of the entire English railway system upon the outbreak of the Great War, later, Deputy Director-General of Railways in France in 1917 with the rank of Brigadier-General, then Inspector-General of Transportation with the rank of Major-General, now, as for nine years past, president of the Canadian National Railways, Knight Commander of the Order of the British Empire, Companion of the Legion of Honor of France, Officer of the Order of Leopold of Belgium and holding the distinguished service medal of the United States; achieving in sixty years a quantity and quality of useful accomplishment such as would constitute a sufficient life work not for one man but for many men; now seeking the solution of pressing transportation problems in our friendly neighbor of Canada, in honoring him we would honor also that great nation with which our country has been at peace for more than a century and between whose territory and our own, along a boundary line of more than three thousand miles, no fort and no ship of war have intervened to maintain unbroken amity and friendship.

Texas Governor Signs Motor Vehicle Regulation Bill

Governor Sterling of Texas has signed the bill, passed at the recent session of the legislature, which fixes a maximum weight of load for motor vehicles operating in the state at 7,000 lb. This provision of the bill will become effective January 1, 1932. Other provisions which will become effective late in August of this year provide that motor trucks shall not exceed a length of 35 ft. as a single vehicle nor 45 ft. as a combination of vehicles. The load limitation applies to combinations of vehicles, such as trucks and trailers as well as to single vehicles. The width of all motor vehicles, including motor coaches is limited to 96 in., and the height of vehicles and loads is limited to 12 ft. 6 in.

In approving the bill Governor Sterling said, "This measure is not entirely in accordance with my views, and I anticipate that some of its provisions probably will be held unconstitutional. However, it was passed by an overwhelming vote of both branches of the legislature and therefore, according to the people of our representative government, its passage meets the wishes of the majority of Texas people. I have given my approval to the bill conscious of the fact that it is not my province to pass on its constitutionality. And while some of its provisions are drastic, I feel that if the measure does not prove satisfactory or legal it later can be repealed or amended as may be deemed advisable."

Southwestern Petroleum Rates to Be Reduced to Meet Competition

Proposals of the southwestern railroads to establish a basic scale of rates for refined petroleum products somewhat lower than the scale recently prescribed by the Interstate Commerce Commission, in order to meet truck and pipe line competition, were approved by the commission, with some modifications, in a supplemental report made public on June 15. Limited authority to vary under certain circumstances from the uniformity requirements was also granted, and the basis for maximum rates to destinations intermediate to gateways and river crossings was modified; but the commission declined to give the roads a free hand to meet changes in competitive conditions as they develop. Instead, it held that no rates should be established less than 75 per cent of the scale approved by it as reasonable, saying that while it had authorized reductions of as much as 35 per cent in cotton rates, the existence of intense carrier and refinery competition might readily cause wrongful preference as to petroleum rates in the future.

The railroads had informed the commission that the rapid development of transportation by motor trucks and the use of gasoline pipe lines had materially changed the situation since the hearings in this case and that it would not be possible for them to meet the competition of other transportation agencies for hauls of 200 miles and less, under the rates which the commission had prescribed. "Except for the maximum rates to destinations intermediate to the gateways and rates made in just relationship thereto," the commission said, "we believe that exceptions to the basic scale should be made only in clear instances of competition by other transportation agencies, such as motor trucks and pipe lines, and not by reason of rail or refinery competition. On the other hand, we believe that respondents should be permitted to meet such competition of other transportation agencies, provided that the rate is compensatory and provided that no unlawfulness is created."

Commissioner Mahaffie, dissenting, said that the basis originally prescribed by the commission was less than a maximum reasonable one and that "making rates to meet the competition of other transportation agencies is, as I see it, not our job." The commission should, in a proceeding of this character, he said, prescribe maximum reasonable rates "and leave to the carriers the determination as to whether they will publish lower rates to meet such competition as they consider it desirable to attempt to meet."

C. N. R. Salaries Question Quiescent

The storm that developed two weeks ago before the special House Committee on National Railways at Ottawa when Conservative members, including Dr. Peter McGibbon (Ontario) and Richard B. Hanson (New Brunswick) demanded the details of the salaries of Sir Henry Thornton and the vice presidents of the Canadian National Railways, has blown over, largely because the Minister of Railways, Hon. Robert J. Manion, has been in Western Canada attending the funeral of his brother. It now looks as if this demand will not be made again this session. Many interesting pictures of the operation of the road, though, were given to the Committee by Sir Henry and his associates, in answer to various questions.

"Within the last eight years the expenditures on capital account on the Canadian National amount to $2,069 per mile of line. On the Canadian Pacific it amounted to $1,990 per mile, or practically the same as ours and on class one railways in the United States; and by that I mean such railways as the New York Central, the Pennsylvania and the Santa Fe, and what are generally regarded as the more advanced railways of the States. During that same period 1923-29, the capital expenditures on such railways in the United States were $2,678 per mile, notwithstanding the fact that we were dealing with a young and relatively unfinished railway and the railways to which I refer in the United States and the Canadian Pacific were finished railways and had been in operation for several decades. During that period to which I referred the Canadian National railways increased their capital account on account of additions and betterments $370,000,000 and the Canadian Pacific $232,000000, and you must remember that the Canadian Pacific has considerably less mileage than we have.

"The tourist business of Canada nets to this country annually a sum which is not less than $300,000,000 The success that we have in exploiting that business depends on a good many things. There are the contributions spent by the provinces to advertise and attract tourists to Canada. It depends upon the highways which are built by the provinces and which may be built by the Federal government. It depends upon transportation services which are offered by the railway companies. It depends upon the fishing clubs, golf courses, and it depends upon our hotels, because hotels play a very large part in the tourist business of the country. This

tourist industry is not exactly the business of the Canadian Pacific or the Canadian National, it is the business of the country as a whole. But each of us in our way and within our sphere makes certain contributions which contribute to retaining and increasing that business. One of those things is, of course, hotels. The Canadian Pacific has always been distinguished for wisdom and and sagacity in management. In the years from 1923 to 1930 their contribution to this tourist business—their investments in hotels, both new hotels and additions to old hotels were represented by the capital sum of $45,000,000. The contribution of the Canadian National in regard to the money we have spent upon hotels in that same period is $16,680,000."

Authority to Meet Unregulated Rates Denied

The Interstate Commerce Commission has denied an application of the Merchants' & Miners' Transportation Company and the Florida East Coast for continuing authority to establish on one day's notice reduced rates between Baltimore, Philadelphia and Norfolk and Key West, Fla., in order to enable them to compete effectively with unregulated ocean shipping. The commission declined to make such a sweeping exemption from its general regulations and pointed out that the situation in which the applicants find themselves possesses no features of emergency. "Rather it is the customary and long existing status as between rail carriers and the ocean lines," the report said, and represents a policy of Congress which the commission is "not at liberty to nullify as a matter of administrative discretion for the avowed purpose of reaching a result supposedly more in the public interest." The report pointed out that in the last ten years upwards of 54,300 applications for waiver of the provisions as to time or other tariff regulations have been considered by it and approximately 46,400 such applications were acted upon favorably; but the commission has endeavored to proceed only in cases of actual emergency and has not recognized the strategic endeavors of carriers as constituting "special or peculiar circumstances or conditions" or "good cause shown."

"Applicants actively and keenly compete for Cuban export and import traffic with ocean carriers which operate in regular and irregular service directly between the three main north Atlantic ports and Havana," the report says. "The ocean carriers are not subject to any of the provisions of the interstate commerce act, and are under no restriction of law as to the rates they may charge. They may and do change their rates at will without notice. The rates of the applicant cannot be changed on less than statutory notice except with our permission. That permission we readily granted as to the reduction of specific rates referred to and covered by the application. Several United States shippers appeared in support of the application. Applicants contend that the granting of the continuing authority would tend to stabilize the present competitive rate structure. Under that authority they could successfully meet the rate quotations of their competitors, and, this, it is argued, would tend to stop their competitors' practice of indiscriminately cutting the rates. Should we grant the applications there is no reason we should not extend the same privileges to any and every common carrier subject to the act which may find itself in competition with some carrier whose rates are not subject to regulation."

R. B. A. Manual for 1931

The Railway Business Association, under date of June 10, has issued what it designates as A Manual of Strategy and Tactics: 1931. This was prepared by the secretary of the association, Frank W. Noxon. In transmitting it to the members, President Alba B. Johnson made the following statement:

"Business revival, to which the requisite final push is always given by some industry well-situated to expand, awaits resumption of normal purchases by the only group that apparently can be put in position to perform that function—namely, the railroads.

"Our guild can do more than any other at this moment to bring the railroads the support they must have if they are to surmount their difficulties and lead the general advance. We have the motive. We have the contacts. We lead by example, which is more persuasive than sermons. We have done it before. We know how.

"The accompanying report is the Railway Business Association manual of strategy and tactics, 1931 edition. The objective of members' effort as there defined is to convince shippers that their own interest in transportation requires a cure for what ails them; that no medicine will taste good; and that instead of proclaiming themselves 'unalterably opposed' to one or another prescription they should prepare to choose amongst unpleasant alternatives. Shippers have a primary stake in the restoration of railway credit and hence in the integrity of railway investments. The manual has four heads:

"1—Before anything else, the head of a manufacturing, contracting or engineering concern offering goods or services to railroads sells the railroad problem to his own board of directors and company staff.

"2—The front which every member company puts up in its contacts is frank self-interest.

"3—To shippers not directly concerned in railway purchases the self-interest appeal stresses business recovery, continued super-service and operating economy through improvements.

"4—Our members' task is to give business men and groups a new heart toward whatever phase of the railroad problem may arise.

"You are shippers and the neighbors and associates of shippers. You are not urged to demand that they yield their judgment deliberately formed on one or another phase of a remedial program, but that before forming a judgment on any aspect they shall resolve to regard the assurance of the railways' financial future as the paramount concern. You can do more than anyone else to start your business and everybody's business if now as on former occasions you will make the mobilization of shippers for sober common counsel a definite organized company effort."

Attitude of Government Toward C. N. R.

Between the special House committee which is dealing with the annual report and the estimates of the road and the Budget debate in the House of Commons the Canadian National is getting a lively "ride" this session at Ottawa. To change the simile, it has a little more so than usual become a political football and is being kicked back and forth between the two main parties in Parliament. First, some Conservative member, notably John T. Hackett (Stanstead), makes a fierce attack on the road and demands its acquisition by a private concern; then a prominent Liberal member, Hon. William D. Euler, and about the only supporter of public ownership of public utilities in the present House, suggests that Mr. Hackett is representing the views of the Conservative Government and that the days of the Canadian National, as a public concern, are numbered if that is the case; then, there is Hon. Edgar N. Rhodes, Minister of Fisheries and the Government's leading member from the Maritime provinces, reading Mr. Euler and the whole House a lecture for suggesting that the Government is out to strangle the road. What Mr. Rhodes said last week represents fairly accurately the present attitude of the Government toward the road, while what Mr. Euler said earlier last week represents the view of a large majority of the people in Ontario where the road is strongly supported, especially by public ownership advocates. Mr. Rhodes said last Friday in the House, among other things: "Members of this house may have their own views upon the subject of private versus public ownership, but whether we agree with the one principle or the other, the fact is that we have government ownership. All parties are in agreement that it must be preserved and maintained. And it is the duty of all governments, of whatever political complexion, or whatever their views upon private or public ownership, to recognize facts and not to permit their sympathy to override sound business judgment in the matter of railway expenditures. As a last word upon this subject, may I express the fervent hope that in all our relationships with the Canadian National Railways, both now and in the future, it shall not be made the subject of party political controversy to the detriment of this great undertaking."

Mr. Euler, two days earlier, said, in part, as follows:—"My reason for injecting myself into the debate is largely because of certain statements which were

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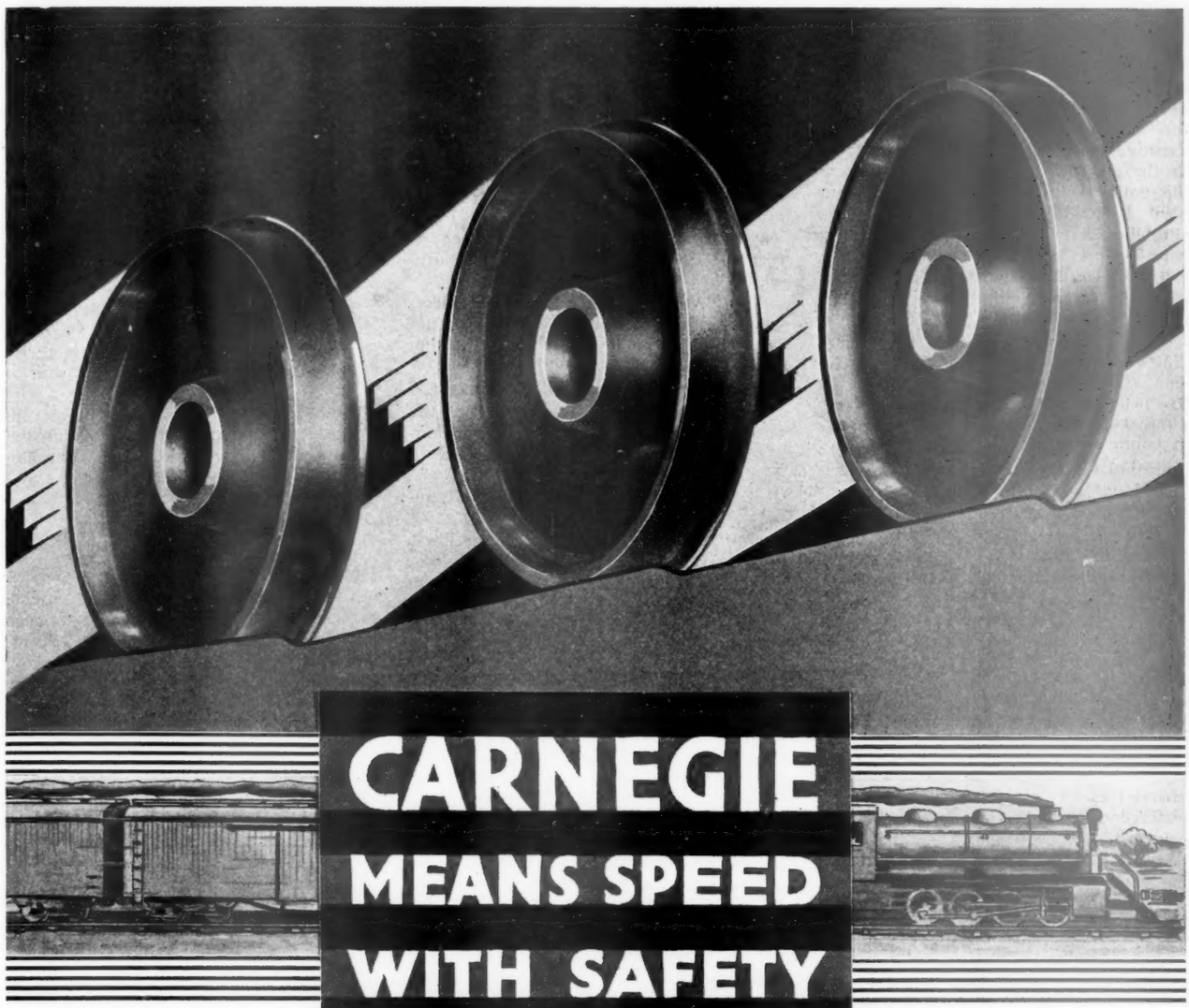

WHEELS are the focal point of safe transportation. Efficient signal systems, necessary as they are, cannot offset inadequate materials in rolling stock. Upon wheels must rest a major share of responsibility.

Carnegie Wrought Steel Wheels have earned an enviable reputation for the efficient manner in which they have shouldered this responsibility for many important railroad systems. To serve even more efficiently, Carnegie Rim-Toughened Wrought Steel Wheels are now available for all classes of service. The process of heat treatment to which these wheels are subjected insures additional service and additional safety out of all proportion to the small increase in cost.

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made by the leader of the government (Mr. Bennett) and by the hon. member for Stanstead (Mr. Hackett) with respect to the national railways. I have some misgiving because of the fact that while the Prime Minister made a very exhaustive analysis of the financial situation of the country, including the position of the national railways, to my disappointment I could not read into his speech anything that betrayed any friendliness for the national railways. When he was followed by the hon. member for Stanstead in a speech in which that hon. member very definitely placed himself on record as being opposed not only to the practice which was followed in the conduct of the national railways, but also to the principle, that of public ownership. I felt that some of us who are the friends of public ownership as exemplified in the operation of the national railways, would take issue with him on that point and say to him that if he represents the opinion of the government and if what he said indicates that in any sense this is merely the preliminary of a propaganda against the national railways, they are playing with fire and will find they will receive the condemnation of the great majority of the Canadian people."

C. N. R. Considering L. C. L. Service on Passenger Trains

How the Canadian National is planning to help its revenues by carrying package freight on passenger trains was outlined last week at Ottawa by Sir Henry Thornton, president of the Canadian National, to the House Committee on National Railways. The disclosure resulted from a remark by R. B. Hanson, a New Brunswick Conservative member.

MR. HANSON: "Take the question of rates. Let me give you an illustration of what you are up against in express rates. The express rate on a crate of oranges from St. John to Fredericton is eighty cents. That involves three or four different handlings—perhaps two on your line and three on the C.P.R. branch line. The truck is calling at the wholesale warehouse for that crate of oranges and the driver of that truck is putting those oranges into my house for thirty-five cents with the result that that situation brings about a decrease in revenue in expresses. What are you going to do to meet that situation? It is a fair question, I think."

SIR HENRY THORNTON: "I want to tell you quite frankly what we are trying to do because I would like to have your reaction and the reaction of this committee. We run a certain number of passenger trains, and we are obliged to do so today in order to preserve the continuity of service—service to the different communities. These passenger trains have got to be run, and today they are running light. Now, we have under consideration filling those trains up with package freight at freight rates, L.C.L. rates. The trains have got to be run, the expense is there, let us fill the trains up and see if we cannot make some money."

MR. HANSON: "In other words you propose to meet that particular competition that way?"

SIR HENRY THORNTON: "We have under consideration a plan to try to meet that situation in that fashion. Now I come to the general question of highway competition. The only way to meet it is to compete with it. There is no good trying to compete with the highway unless an analogous service is furnished because you do not get anywhere."

MR. HANSON: "May I interject there; as a corollary to that proposition should there not be public regulation of other common carriers as well?"

SIR HENRY THORNTON: "Mr. Hanson, I will not repeat my statement, but at the first meeting of this committee I ventured to express what I think ought to be done in the way of regulations."

MR. HANSON: "They ought to be regulated."

SIR HENRY THORNTON: "There is no question about that; but after that there is still the competitive feature. Now, unless we furnish a service which is equally attractive to the highway service, we are not going to get the business. So we have had a committee at work for some little time to see if we could not have some system of containers, collections and delivery to implement the trains which have to run, in order to work out some scheme which will put us on a parity with the highways when it comes to the question of competition."

A. T. & N. Broadcasts Railroad Facts

President J. T. Cochrane of the Alabama, Tennessee & Northern in a radio address broadcast from Station WODX, Mobile, Ala., on June 12, said the following to the people of that city:

"Do MOBILIANS KNOW:

"That the railroads entering Mobile pay in Mobile a total of $231,147.70 in taxes, which is about one-twelfth of the total taxes paid?

"That these railroads entering Mobile employ 2947 people who with their families make about one-fifth of Mobile's population who are dependent on these railroads for their support?

"The amount of wages paid the employees of these railroads is $4,732,328 annually?

"That the truck, bus and barge lines have very few employees in Mobile and their payrolls are very small; the barge line pays no taxes whatever and the taxes paid by the truck and bus lines amount to practically nothing compared to the amount paid by the railroads; the payrolls of the railroads are the largest of any single industry in our community?

"That the money being paid to the railroad employees is being spent in Mobile and will naturally be increased or decreased in proportion to the amount of traffic given the railroads by Mobilians?

"It seems fair, therefore, for the business people of Mobile to have these facts in mind when solicited by truck, bus and barge line competitors of the railroads."

Equipment and Supplies

FREIGHT CARS

THE NORTH WESTERN REFRIGERATOR LINE COMPANY is considering the purchase of 220 refrigerator cars.

THE CHICAGO GREAT WESTERN has ordered 500 box cars of 50 tons capacity from the Pullman Car & Manufacturing Corporation.

THE AMERICAN RAILROAD COMPANY OF PORTO RICO is inquiring for 100 all-steel sugar cane cars. N. L. Soto, purchasing agent, San Juan, Porto Rico.

PASSENGER CARS

THE CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS has ordered two 75-ft. combination baggage and mail gas electric rail motor cars with model 860 power plants from the J. G. Brill Co.

IRON & STEEL

THE ERIE has ordered 160 tons of steel for a bridge at Oakridge, N. J., from the Harris Structural Steel Company, Inc.

THE UNION PACIFIC has ordered 112 tons of structural steel for miscellaneous bridge work from the McClintic-Marshall Corporation.

THE CHICAGO, BURLINGTON & QUINCY has ordered 700 tons of structural steel for use at La Salle, Ill., from the Mount Vernon Bridge Company.

THE BOSTON & MAINE has ordered 210 tons of steel for grade crossing elimination work at Valley Forge, N. Y., from the Phoenix Bridge Company.

NEW YORK CENTRAL.—Bids will be received until 12 o'clock noon, D.S.T., June 29, by W. C. Bower, vice-president in charge of purchases, 466 Lexington avenue, New York, for steel wheels covering the requirements of the New York Central Lines for the second half of 1931. Bids will also be received on the same date by C. C. Warne, purchasing agent, for the New York Central Railroad's requirements of steel bars, steel shapes, steel plates, etc., for the second half of 1931.

SIGNALING

THE MISSOURI-KANSAS-TEXAS has ordered from the Union Switch & Signal Company material for an electric interlocking at the crossing of the Gulf, Colorado & Santa Fe, at Sealy, Texas; the machine to have nine working levers.

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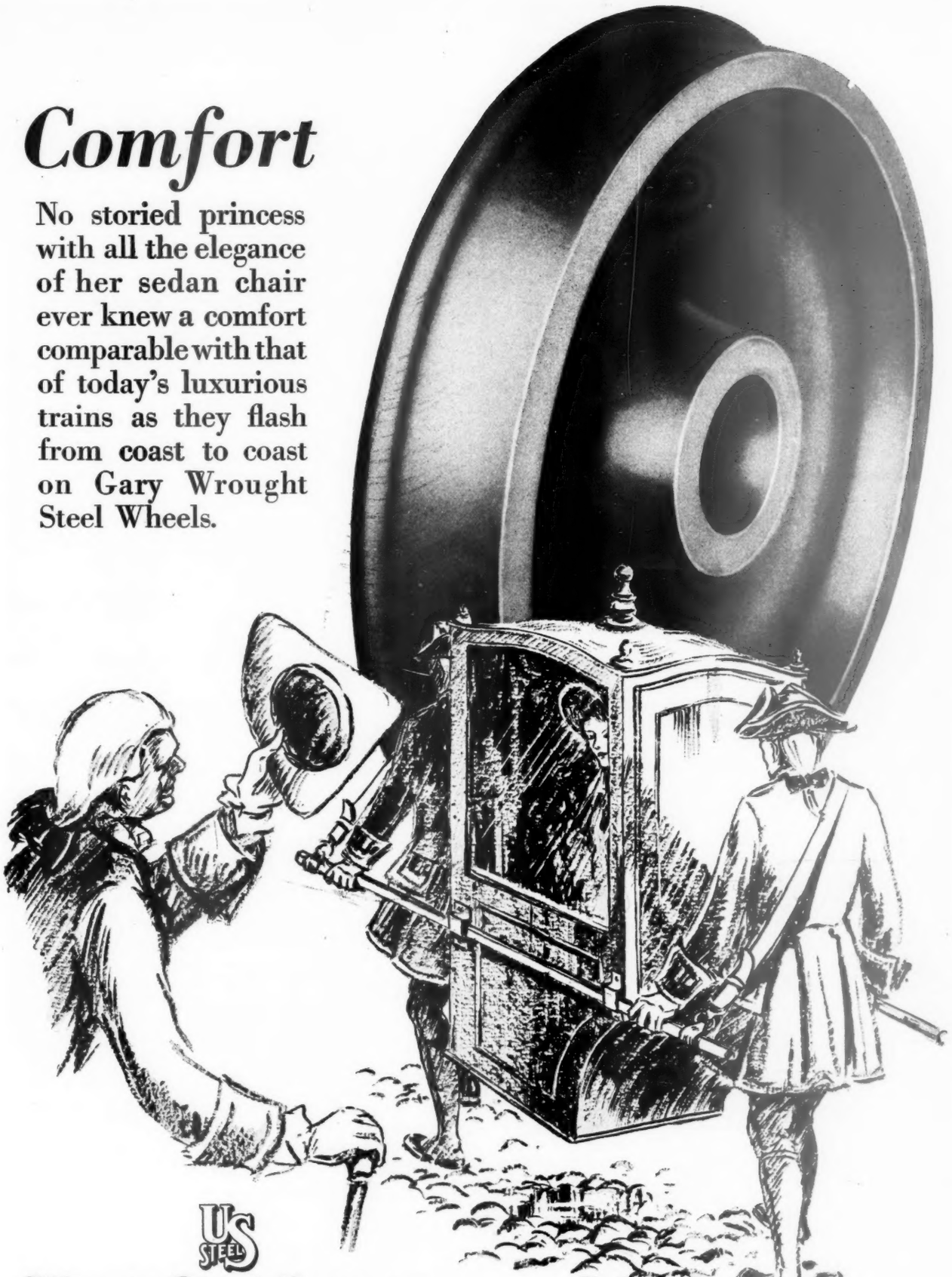
Comfort

No storied princess with all the elegance of her sedan chair ever knew a comfort comparable with that of today's luxurious trains as they flash from coast to coast on Gary Wrought Steel Wheels.



USS STEEL

Illinois Steel Company

Subsidiary of United States Steel Corporation

General Offices: 208 South La Salle Street, Chicago

Supply Trade

The Wood Conversion Company has opened a railroad sales office at 149 California street San Francisco, Cal. in charge of **O. J. Stevens.**

Frank K. Billett, for the past eight years head of the cost accounting department of the **Toledo Scale Company,** Toledo, Ohio, has been appointed secretary.

The Railway Equipment and Machinery Mart has been organized to make it possible for manufacturers to display their products in the St. Louis Mart building now being constructed on the southwest corner of Twelfth boulevard and Spruce street in St. Louis, Mo.

The stockholders of the **American Brown Boveri Electric Corporation** have approved the proposal of its directors as reported in the *Railway Age* of June 13, page 1173, to sell its electrical assets to the **Allis-Chalmers Manufacturing Company.** The American Brown Boveri Electric Corporation will continue its activities under the name of the **New York Shipbuilding Corporation.**

Thomas H. Morcom, assistant superintendent of the **General Railway Signal Company,** Rochester, N. Y., has been appointed factory superintendent succeeding the late **Frank H. Banner; Robert H. Parks** succeeds Mr. Morcom as assistant superintendent. Thomas H. Morcom was born at Jermyn, Pa., and in 1908 entered the service of the Lehigh Valley as piece work inspector at Sayre shops. He subsequently was assistant toolroom foreman for the General Railway Signal Company and during the World War served as division superintendent at the U. S. Naval gun factory, Rochester, N. Y. He then returned to the service of the General Railway Signal Company and during the past 12 years served as assistant production manager and assistant superintendent.

The Weston Electrical Instrument Corporation, Newark, N. J., has acquired the business and assets, subject to the liabilities, of the **Jewell Electrical Instrument Company,** Chicago. The latter company was organized in 1903, and its acquisition will give greater range to the products and service of the Weston Company, and will afford the Weston Company additional distributing facilities, especially in the middle western field. The Jewell activities will be conducted by a newly organized subsidiary company, to be known as the **Jewell Electrical Instrument Company,** which will continue manufacture at the Chicago plant under the old management and without substantial changes in the personnel and sales representatives. **Orval Simpson** is chairman of the board of directors, and **Ray R. Simpson,** president, of the new company. In connection with the acquisition, the Weston Company has issued 14,000 additional shares of its common stock in part payment of the purchase price.

D. A. Lucas, who has been associated with the **Prime Manufacturing Company,** Milwaukee, Wis., and the late O. L. Prime for the past 13 years, has been elected vice-president of the company. Mr. Lucas has had a long experience in the railroad field; prior to his association with the Prime Manufacturing Company he was for 47 years in railroad work. He served consecutively with the Milwaukee Northern; the Chicago, Milwaukee, St. Paul & Pacific, at Green Bay, Wis., and from 1892 for 25 years with the Chicago, Burlington & Quincy. Mr. Lucas has also taken an interest in civic affairs, having served as mayor of Havelock, Neb., while in the service of the Chicago, Burlington & Quincy.

D. A. Lucas

OBITUARY

R. W. Rusterholtz, South African manager of the Ingersoll-Rand Company, with headquarters at Johannesburg, South Africa, died on June 12.

TRADE PUBLICATIONS

STAINLESS STEELS.—The characteristics of various grades of straight chromium and chromium-nickel low-carbon steels are discussed in detail in a treatise of 36 pages prepared under the direction of a committee on stainless and heat-resisting steels composed of representatives of the subsidiary manufacturing companies of the United States Steel Corporation—The American Sheet & Tin Plate Company, Pittsburgh, Pa.; the American Steel & Wire Company, Chicago; the Carnegie Steel Company, Pittsburgh; the Illinois Steel Company, Chicago, and the National Tube Company, Pittsburgh.

SHEET IRON.—The Republic Steel Corporation, Massillon, Ohio, has issued three booklets, as follows: "Steel Iron—A Primer," a 36-page illustrated booklet telling in non-technical language the story of iron-working, and describing, step by step, modern commercial practice of sheet rolling; "Toncan Iron Pipe for Permanence," a 64-page booklet illustrating many interesting installations and applications of copper molybdenum iron alloy pipe, and "Agathon Alloy Steels," an illustrated handbook of 132 pages giving recent and authoritative data on alloy steels. Instructions for the heat treatment of these steels is given in chart form.

Construction

ATCHISON, TOPEKA & SANTA FE.—To serve a refinery to be built by the United States Potash Company, Inc., the Interstate Commerce Commission has authorized this railroad to construct, at an estimated cost of $251,400, a branch line extending five miles east from Loving, N. M.

ERIE.—This company will receive bids on June 25 for the construction of a passenger station at Jamestown, N. Y.

SOUTHERN PACIFIC.—This company and the City of Sacramento (Cal.) have awarded a contract to Lindgren-Swinerton, Inc., Sacramento, for the construction of a grade separation structure at H street in that city at a cost of about $59,000.

SOUTHERN PACIFIC (Texas and Louisiana Lines).—This company and the City of Beaumont, Tex., have reached an agreement for the elevation of the tracks of this company, which will eliminate grade crossings with 10 city streets. The project also involves the construction of a new bridge over the Neches river, near Beaumont. Of the total estimated cost of the construction $3,100,000 will be borne by the railroad and $900,000 by the city.

WESTERN PACIFIC.—This company has applied to the Interstate Commerce Commission for authority to use 5.27 miles of the Southern Pacific track and facilities at Westwood, Cal., instead of constructing its own line as a part of its northern California extension, as authorized by the commission.

FOR THE ACCOMMODATION OF AIRPLANE PASSENGERS to and from New York City, the Pennsylvania is to operate trains between Pennsylvania station, New York, and Newark, N. J., about once an hour throughout the day, from 7 a.m. to 6 p.m. They will connect at Market Street station, Newark, with motor coaches direct to the Metropolitan airport, which is the terminus of the New York, Philadelphia & Washington Airways. Patrons of that line will make substantial savings in time, as compared with the facilities heretofore available.

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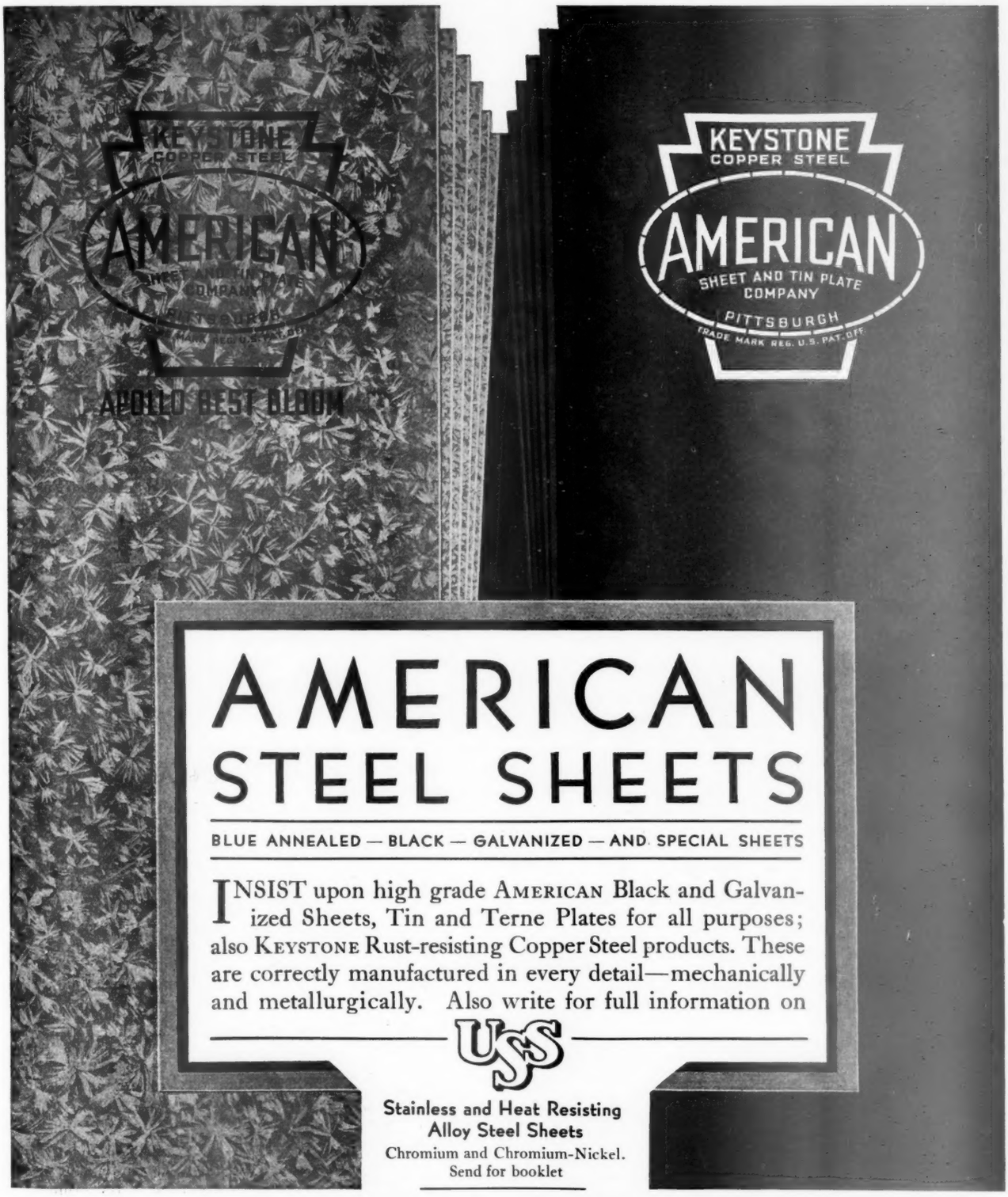

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USS STEEL

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MINNESOTA STEEL COMPANY
NATIONAL TUBE COMPANY

OIL WELL SUPPLY COMPANY
THE LORAIN STEEL COMPANY
TENNESSEE COAL, IRON & RAILROAD CO.
UNIVERSAL ATLAS CEMENT COMPANY

Pacific Coast Distributors—Columbia Steel Company, Russ Bldg., San Francisco, Calif.
Export Distributors—United States Steel Products Company, 30 Church St., New York, N. Y.

Financial

BROOKSVILLE & OHIO RIVER.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon its 10-mile line between Brooksville, Ky., and Wellsburg, the abandonment being forced by reason of bus and truck competition.

CHICAGO, INDIANAPOLIS & LOUISVILLE.—*Omits Dividend.*—The directors of this company at their meeting last week omitted the semi-annual dividend of $3.50 on common and $2 on preferred stock, announcing that the situation regarding further payments would be reviewed once more in December.

DENVER & RIO GRANDE WESTERN.—*Acquisition of D. & S. L.*—The Interstate Commerce Commission has allowed this company until July 31 to accept the conditions imposed in connection with its application for authority to acquire control of the Denver & Salt Lake.

FORT SMITH & WESTERN.—*Receivership.*—This railroad was placed in receivership on June 1 under an order by Federal Judge F. A. Youmans at Fort Smith, Ark. Louis B. Barry, Jr., vice-president and general manager, was named receiver. The action was taken on the application of the Central United National Bank of Cleveland, Ohio, which stated it held mortgages on the company's properties to secure an original bonded indebtedness of $3,500,000. Another indebtedness listed in the application is a government loan of $140,000, securities for which are held by the Mellon National Bank of Pittsburgh, Pa. The railroad has 227 miles of main line between Fort Smith, Ark., and Oklahoma City, Okla., with a 22-mile branch from Fallis, Okla., to Guthrie.

KANSAS CITY SOUTHERN.—*Dividend Reduced.*—Directors of this company have declared a 50-cent dividend on the common stock, as compared with $1.25 paid last quarter and previously.

MISSOURI PACIFIC.—*Valuation.*—The Interstate Commerce Commission has denied this company's petition for a re-opening of its valuation proceedings for the introduction of further testimony.

NEW YORK CENTRAL.—*Acquisition of Ulster & Delaware.*—The Interstate Commerce Commission has approved the acquisition by the New York Central of the Ulster & Delaware at its commercial value which is found to be $2,500,000. The issuance of a certificate has been deferred pending acceptance by the latter company. Under terms of the consolidation of the New York Central properties, it was required to make an effort to also acquire certain other railroads in its territory, of which the Ulster & Delaware was one. The Central offered $1,500,000 for the U. & D., which offer the latter declined and the matter was submitted to arbitration. Two of the three arbitrators arrived at a figure of $4,100,000 as the commercial value of the property, to which the Central's arbitrator disagreed, his finding being $1,813,333. The U. & D. then petitioned the Interstate Commerce Commission for an order to show cause why the Central should not be required to apply for acquisition of its lines at the $4,100,000 figure. By answer the Central invoked a review by the Interstate Commerce Commission of the arbitration proceedings.

SOUTHERN.—*Dividend.*—The directors of this company which last December, declared dividends on common stock totaling $5.65 to be paid in 1931, last week declared a further dividend of 35 cents, bringing the total disbursement for the year up to $6 a share. At the same time announcement was made that no further common dividends were contemplated during 1931. Last year the stock paid $8.

TEXAS & NEW ORLEANS.—*Abandonment.*—This company and the Galveston, Harrisburg & San Antonio have applied to the Interstate Commerce Commission for authority to abandon the line from Van Vleck to Hawkinsville, Tex., 17.4 miles, and this company and the San Antonio & Aransas Pass have applied for authority to abandon the line from Gonzales to Luling, Tex., 19.1 miles. Decrease of traffic due to automobiles and trucks is given as the reason in both cases. The S. A. & A. P. proposes to extend its operations over the track of the G. H. & S. A. between Gonzales and Luling.

WESTERN MARYLAND.—*Bonds.*—The Interstate Commerce Commission has authorized this company to issue $3,341,000 of first and refunding mortgage 5½ per cent bonds and $1,659,000 of similar 5 per cent bonds, to be pledged as collateral for notes.

Average Prices of Stocks and of Bonds

	June 16	Last week	Last year
Average price of 20 representative railway stocks.	68.91	64.01	116.41
Average price of 20 representative railway bonds..	90.87	90.38	94.04

Dividends Declared

Alleghany & Western.—3 Per Cent, payable July 1 to holders of record June 20.

Canada Southern.—1½ Per Cent, semi-annually, payable August 1 to holders of record June 26.

Chicago, Indianapolis & Louisville.—Common and Preferred dividends omitted.

Indiana Harbor Belt.—5 Per cent, payable June 26 to holders of record June 19.

Mahoning Coal R.R.—Common, $12.50, quarterly, payable August 1 to holders of record July 15; Preferred, $1.25, payable July 1 to holders of record June 22.

Missouri - Kansas - Texas. — Preferred, $1.75, quarterly, payable September 30 to holders of record September 5.

New York Central.—1½ Per Cent, quarterly, payable August 1 to holders of record June 26.

Pittsburgh, Ft. Wayne & Chicago.—Common, $1.75, quarterly; Preferred, $1.75, quarterly, payable July 1 and July 7, respectively, to holders of record June 10.

Pittsburgh & Lake Erie.—2½ Per Cent, payable August 1 to holders of record June 26.

Southern.—Common, 35c, payable August 1 to holders of record July 1; Preferred, $1.25, quarterly, payable July 15 to holders of record June 22. The dividend of 35c on the common stock is payable out of 1930 earnings and with the $1.65 declared out of 1929 earnings makes $2 payable August 1 on the common stock. No further dividend will be paid on this stock in 1931.

Virginian.—Preferred, $3.00, payable August 1 to holders of record July 19.

West Jersey & Seashore.—Common, $1.50, payable July 1 to holders of record June 15.

Railway Officers

EXECUTIVE

Henry D. Pollard, vice-president and general manager of the Central of Georgia, with headquarters at Savannah, Ga., has been elected to the presidency of the company, succeeding **A. E. Clift,** deceased.

FINANCIAL, LEGAL AND ACCOUNTING

A. G. Armstrong, assistant comptroller of the Illinois Terminal Company and the Alton & Eastern, with headquarters at Alton Ill., has also been appointed assistant comptroller of the Illinois Traction, Inc., the St. Louis, Troy & Eastern, the St. Louis & Illinois Belt and the St. Louis Electric Terminal Railway Co.

Charles A. Leggo, land commissioner and right of way agent of the Chicago, St. Paul, Minneapolis & Omaha, with headquarters at St. Paul, Minn., has been appointed right of way commissioner in addition to the position of land commissioner, succeeding **Henry P. Barlow,** who retired from active duty under the pension plan of the company on June 6, after 48 years of service.

OPERATING

J. C. Roth, superintendent of transportation of the Chicago, Burlington & Quincy, has been appointed general superintendent of transportation, with headquarters as before at Chicago.

E. C. Garrabrant, superintendent of mail traffic of the Atlantic Coast Line, with headquarters at Wilmington, N. C., has been appointed superintendent mail and express traffic, with the same headquarters.

A. H. Cavanagh, superintendent of the Canadian National, with headquarters at Capreol, Ont., has been transferred in the same capacity to Allandale, Ont., succeeding **W. B. Way,** who has retired on pension. The above changes are effective July 1.

Edwin D. Jones, superintendent of the Stevens Point division of the Minneapolis, St. Paul & Sault Ste. Marie, with headquarters at Stevens Point, Wis., has been transferred to the Duluth-Superior division, with headquarters at Superior, Wis., succeeding **Charles L. Simpson,** who has been transferred to the Stevens Point division.

W. C. Givens, assistant superintendent of the Chicago Terminal division of the Chicago, Milwaukee, St. Paul & Pacific, with headquarters at Bensenville, Ill., has been promoted to superintendent of

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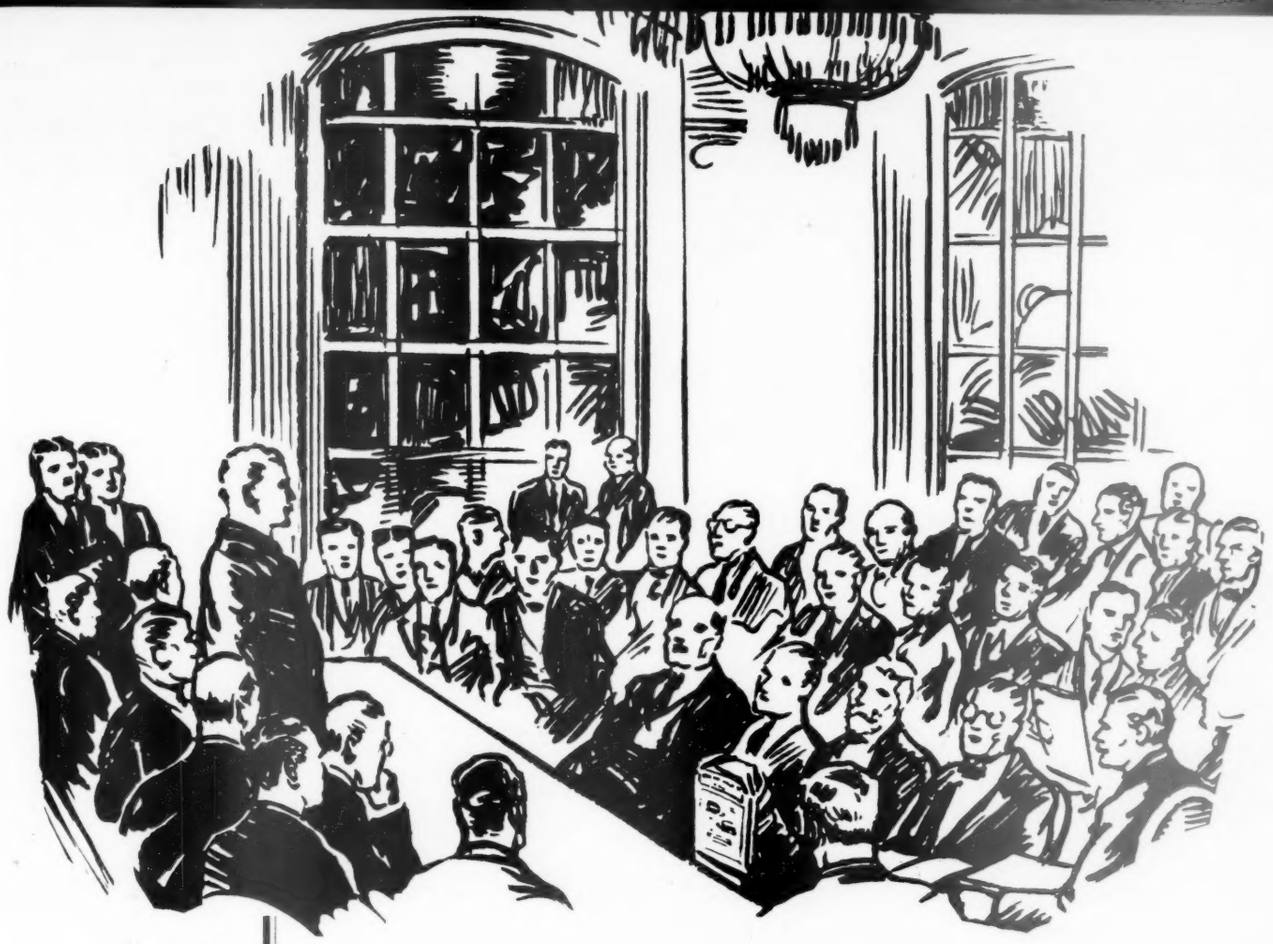
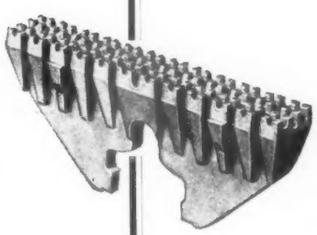


Don't Fail to Discuss Better Fires



and their stimulating influence upon locomotive efficiency—how they can be obtained — the savings effected and the factors which make *better fires* possible.

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Better Fires

Certainly make locomotives better. This fact has been definitely proved by every FIREBAR installation.

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the Kansas City division, with headquarters at Ottumwa, Iowa, succeeding **P. H. Nee,** who has been transferred to the Idaho division, with headquarters at Spokane, Wash. **W. M. Thurber,** assistant superintendent of the Dubuque & Illinois division, with headquarters at Dubuque, Iowa, has been transferred to the La Crosse & River division, with headquarters at La Crosse, Wis., succeeding **D. T. Bagnell,** who has been transferred to the Chicago Terminal division to replace Mr. Givens.

Harold E. Calhoun, who has been appointed superintendent of car service of the Bangor & Aroostook, with headquarters at Bangor, Me., was born on January 20, 1886, at St. Martins, N.B. He was graduated from high school in 1902 and entered the service of the Bangor & Aroostook in February, 1903, as operator and station agent. He became train dispatcher on the Northern division of that road in May, 1910, and in October, 1917, was promoted to chief train dispatcher of the same division. In March, 1920, Mr. Calhoun was appointed assistant trainmaster of the Southern division, serving in that capacity until his recent promotion to the position of superintendent of car service, which became effective on May 20.

Effective July 1, **R. Colclough,** superintendent of the Saguenay division of the Canadian National, with headquarters at Quebec, Que., will retire, after 42 years of service with that company. He will be succeeded by **G. R. Edgley,** superintendent of the Montreal division, with headquarters at Montreal, Que. Mr. Edgley's jurisdiction will include the Lairet and Parent Square terminals and wharves. **J. E. Gibault,** superintendent at Levis, Que., has been transferred in the same capacity to Montreal, succeeding Mr. Edgley. The position of superintendent of terminals at Quebec has been abolished, and **W. J. Atkinson,** who formerly held that position, has been appointed superintendent of the Levis division, replacing Mr. Gibault. Mr. Atkinson's jurisdiction will include the Bridge and Marine Spur subdivisions.

The superintendencies of the Portage and Saskatoon divisions of the Canadian National, with headquarters at Winnipeg, Man., and Saskatoon, Sask., respectively, have been abolished and their duties have been assumed by the general superintendent of the Manitoba district, **W. R. Devenish,** in the case of the Portage division, and by the general superintendent of the Saskatchewan district, **C. Forrester,** in the case of the Saskatoon division. **E. Crawford,** superintendent of the Portage division, has been transferred to the Melville division, with headquarters at Melville, Sask., succeeding **J. J. Napier,** who has been transferred to the Brandon division, with headquarters at Brandon, Man. Mr. Napier replaces **J. W. Crane,** who has been appointed assistant superintendent at Kamloops, B. C. **D. W. Steeper,** superintendent of the Saskatoon division, with headquarters at Saskatoon, has been transferred to the Port Arthur division, with headquarters at Port Arthur, Ont., succeeding **N. P. North,** who has been appointed superintendent of transportation of the Manitoba district, with headquarters at Winnipeg. **S. McElroy,** assistant superintendent at Kamloops, has been transferred to Hanna, Alta., where he replaces **W. Smith,** who has been appointed general yardmaster at Edmonton, Alta.

TRAFFIC

T. L. Hirshman has been appointed traffic manager of the Chicago & Illinois Valley, with headquarters at Ottawa, Ill.

Frank J. Watson, commission traffic representative of the Canadian National at Montreal, Que., will retire from the service of that road on July 1, after nearly half a century with the C.N.R. The position of commission traffic representative which he now occupies will be abolished.

Effective June 15, the position of district passenger agent of the Canadian National at Cincinnati, Ohio, was abolished, and additional traffic department changes were made, as follows: **M. C. Dunn,** city passenger and ticket agent at Brockville, Ont., commenced leave of absence prior to his retirement and the position he held was abolished. **H. M. Morgan,** general agent, passenger department, at Buffalo, N. Y., also began a leave of absence prior to retirement on pension, being succeeded by **W. J. Burr,** formerly general agent, passenger department, at Pittsburgh, Pa. The position of general agent, passenger department, formerly held by Mr. Burr was abolished. **W. J. Gilkerson,** general agent, passenger department, at San Francisco, Cal., has also been granted a leave of absence prior to retirement on pension. He has been succeeded by **R. F. McNaughton,** district passenger agent at Prince Rupert, B. C., whose former position has been abolished.

Promotions Put Landman at Head of N. Y. C. Passenger Department

As reported in the *Railway Age* of June 13, page 1176, changes and promotions in the passenger traffic department of the New York Central following the death on May 31 of Loren F. Vosburgh, vice-president in charge of passenger traffic, have resulted in extending the jurisdiction of Louis W. Landman, general passenger traffic manager, Lines West, to cover the entire system, and in a number of other promotions, details of which follow.

Louis W. Landman, general passenger traffic manager of the New York Central, Lines West, and of the Cleveland, Cincinnati, Chicago & St. Louis, the Michigan Central and the Pittsburgh & Lake Erie, with headquarters at Chicago, whose jurisdiction has been extended to include the New York Central, Lines, Buffalo and

Louis W. Landman

East, and the duties formerly performed by L. F. Vosburgh, has been in the service of the New York Central System since 1904. He was born on December 6, 1869, at Waynetown, Ind., and entered railway service in 1886, serving consecutively, until 1889, as telegraph operator on the Indiana, Bloomington & Western (C.C.C. & St. L.), and as ticket agent for the same road at Danville, Ill. In 1889 he was appointed city passenger and ticket agent of the Fort Wayne, Cincinnati & Louisville (N. Y., C. & St. L.) at Fort Wayne, Ind. He subsequently served successively as southern passenger agent on the Columbus, Hocking Valley & Toledo (C. & O.) and as general traveling agent in the passenger department of the same road and its successor, the Hocking Valley, and in September, 1904, became general agent in the freight and passenger department of the Cleveland, Cincinnati, Chicago & St. Louis. The following year he was appointed general agent in the passenger department of the New York Central Lines at Toledo, Ohio. He was appointed general western passenger agent of the Lake Shore & Michigan Southern (New York Central) in 1906. Mr. Landman was appointed general passenger agent of the Lake Erie & Western (now N. Y., C. & St. L.) in 1910 and in the following year he became general passenger agent of the Michigan Central. He was promoted to the position of passenger traffic manager of the New York Central and the Michigan Central in March, 1920, and in February, 1930, was further advanced to the position of general passenger traffic manager of the consolidated roads and the Pittsburgh & Lake Erie, in which capacity he had served up to the present time.

Albert E. Brainard, appointed passenger traffic manager of the New York Central, Lines East, with headquarters at New York, has been in the service of the New York Central since 1887. He started his railway career with that road as stenographer in 1887 and in June, 1889, was appointed traveling passenger agent. In June, 1898, he was promoted to the position of district passenger agent. He became general agent in the passenger department in January, 1900, remaining in that position until February, 1907, at which time he was appointed general agent at Williamsport, Pa. He was later transferred to New York as general traveling passenger agent and in March,

1924, he was promoted to the position of assistant general passenger agent. He served in the latter position until December, 1928, when he became general

Albert E. Brainard

passenger agent. In September of the following year he was advanced to assistant passenger traffic manager, the position he held at the time of his recent promotion.

James R. Grant, who has been appointed assistant passenger traffic manager of the New York Central, Lines Buffalo and East, was born in Monroe, Mich., on November 26, 1885. He entered railway service as clerk in the local freight office of the Lake Shore & Michigan Southern (now New York Central) at Buffalo, N. Y., in 1901. From 1903 to 1904 he

James R. Grant

served as chief clerk in the commercial agent's office of the Toledo, St. Louis & Western (now part of the N. Y., C. & St. L.). For a short time he was chief clerk in the commercial agent's office of the New York, New Haven & Hartford, then assuming a similar position with the Atchison, Topeka & Santa Fe at Cleveland, Ohio. From March to November, 1905, he was clerk in the office of the vice-president of the New York Central Lines at Chicago. On the latter date he was appointed secretary to the freight traffic manager for the same road at that point, becoming secretary to the traffic manager in 1917. From February to July, 1918, he was assistant chief clerk to the traffic manager, same road, then becoming (July to December) assistant chief clerk to the resident traffic assistant, United States Railroad Administration, at Chicago. He next served as chief clerk to the resident traffic assistant and from 1919 to 1920 was chief clerk to the senior traffic assistant, both with the U. S. R. A. He became assistant to the vice-president in charge of traffic of the New York Central Lines in 1920, the position he held at the time of his recent promotion.

Irving M. Taylor, recently appointed assistant passenger traffic manager of the New York Central, with headquarters at

Irving M. Taylor

New York, has been in the service of that road since 1898. He was born on October 9, 1881, at Irvington, N. Y., and began his railroad career with the New York Central in 1898, serving continuously with the company, with the exception of a few months, in various capacities until November, 1928, when he became general passenger agent at New York, the position he held at the time of his recent promotion.

James W. Switzer, who has been appointed assistant passenger traffic manager of the New York Central, Lines West, and of the Cleveland, Cincinnati, Chicago & St. Louis, the Michigan Central and the Pittsburgh & Lake Erie, was

James W. Switzer

born on April 18, 1881, at Galesburg, Ill. He was educated at the University of Iowa and entered railway service in 1901 as telegraph operator for the Chicago, Burlington & Quincy, since which time he was, consecutively to November, 1917, ticket seller, city passenger agent and passenger rate clerk for the same road; rate clerk on the Illinois Central, and chief rate clerk and chief clerk on the Michigan Central. Mr. Switzer was appointed assistant general passenger agent on the latter road in November, 1917, serving in that capacity until November, 1925, when he became general passenger agent for the same road at Chicago, which position he held at the time of his recent appointment.

ENGINEERING AND SIGNALING

A. W. Galbreath, valuation engineer of the Missouri-Kansas-Texas, with headquarters at St. Louis, Mo., has resigned from that position and has opened an office at St. Louis for the practice of utility and railway valuation engineering in connection with recapture, tax and rate cases and the reorganization of such properties.

Effective July 1, the position of division engineer of the Canadian National at Capreol, Ont., will be abolished and the duties formerly performed by the division engineer at that point will be taken over by **C. H. N. Connell,** district engineer, with headquarters at North Bay, Ont. **H. J. Black** has been appointed division engineer of the Hornepayne division, with headquarters at Hornepayne, Ont., succeeding **H. L. Benson,** transferred.

Francisco Malagamba, division engineer of the Monterrey-Golfo division of the National of Mexico, with headquarters at Monterrey, N. L., has been also appointed division engineer of the Monclova division. **Manuel Salazar Arce,** division engineer of the Chihuahua division at Chihuahua, Chih., has been transferred to the Jalapa division, with headquarters at Jalapa, Ver. C. **C. Foncerrada y Basave,** engineer of construction, with headquarters at Tampico, Tam., has been appointed division engineer of the Cardenas division, with headquarters at Cardenas, S. L. P. **Ricardo Lelo de Larrea** has been appointed division engineer of the Mexico-Queretaro division, with headquarters at Queretaro, Qro.

Schuyler M. Smith, who has been appointed bridge engineer of the Missouri-Kansas-Texas, with headquarters at St. Louis, Mo., has been engaged in railway and bridge engineering work for the past 20 years. He was born at Manchester, Mich., on April 21, 1888, and graduated from Armour Institute of Technology in 1911. Mr. Smith obtained his first railway experience on the Chicago & North Western in 1911. Shortly thereafter he was connected with the Isthmian Canal Commission and in 1913 he was appointed assistant engineer on the Wabash. From 1917 to 1919 he served as a captain in the engineer corps of the United States Army, where he designed a pontoon footbridge which was used extensively in the Argonne offensive. He re-entered railway

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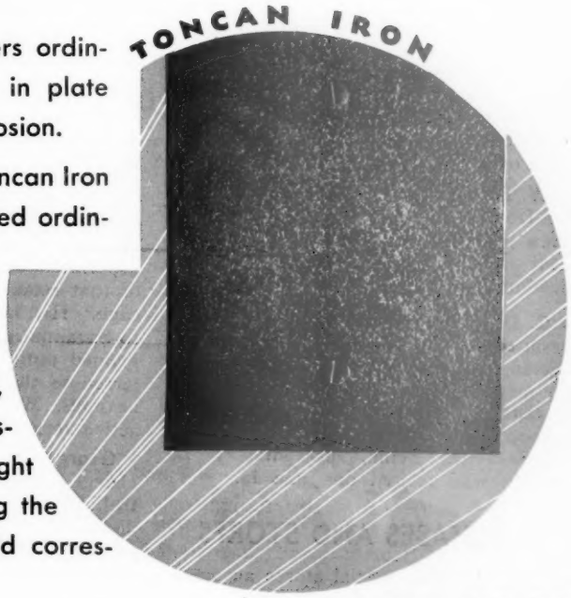

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service in 1919 with the Wabash when he was appointed principal assistant engineer, with headquarters at St. Louis.

Schuyler M. Smith

In 1922 he left railway work to enter the service of the American Bridge Company, where he remained until 1924 when he returned to the Wabash in the bridge engineer's department. For the past several years Mr. Smith had been assistant bridge engineer of the Wabash, a position he held until his appointment as bridge engineer of the Katy on June 1.

MECHANICAL

W. H. Sagstetter, master mechanic of the Decatur division of the Wabash, has been promoted to assistant superintendent of the locomotive department, with headquarters as before at Decatur, Ill.

C. D. Love, assistant master mechanic on the Louisville & Nashville at Covington, Ky., has been promoted to master mechanic of the Nashville terminals of that railroad and the Nashville, Chattanooga & St. Louis, with headquarters at Nashville, Tenn., succeeding **J. L. Enoch,** who retired on June 15.

PURCHASES AND STORES

C. H. Murrin, special stores accountant on the Illinois Central at Chicago has been appointed general storekeeper of the Louisville & Nashville, with headquarters at South Louisville, Ky., succeeding **E. M. Atkins,** who held the title of acting general storekeeper. Mr. Atkins has assumed his former position of assistant general storekeeper, with headquarters at South Louisville.

OBITUARY

John Livingston Snow, former auditor of the New York Central, died at his home in White Plains, N. Y., on June 16 from heart disease.

E. V. Williams superintendent of motive power of the Buffalo, Rochester & Pittsburgh, with headquarters at DuBois, Pa., died at Rochester, Minn., on June 14.

Aurelio Chavez, chief engineer of the National of Mexico, with headquarters at Mexico, D. F., who died recently in that city, had been engaged in railway and mining engineering work for 21 years. He was born at Huitzuco, Gro., in 1881 and attended high school in Mexico City. During 1910 and 1911 he served as a civil engineer on railroad construction in the state of Guerrero, and in the following year he was appointed assistant division engineer on the National of Mexico at Torreon, Coah. From 1913 to 1915 Mr. Chavez was connected with a mining company and in 1916 he returned to railroad service in the engineering department of the National of Mexico. Here he was advanced through various positions, including that of engineer, maintenance of way, of the system. He was promoted to chief engineer in May, 1930.

W. M. Weidenhamer, former general superintendent on the Eastern lines of the Chicago, Milwaukee, St. Paul & Pacific at Chicago, Savanna, Ill., and Minneapolis, Minn., died at Los Angeles, Cal., on May 6, after an illness of several years. Mr. Weidenhamer was born in Schuyler county, Ill., on June 23, 1863, and entered railway service in 1880 as a brakeman on the Chicago, Burlington & Quincy. Later he served on the Burlington as a conductor, special assistant to the operating vice-president, and trainmaster at Galesburg, Ill., and at McCook, Neb., and as division superintendent at Sterling, Colo., and at Alliance, Neb. In December, 1917, he was appointed inspector of transportation of the Milwaukee, and in the following year he was promoted to general superintendent of the Southern district of that road, with headquarters at Chicago. His headquarters were removed to Savanna in March, 1920, where he remained until 1923 when he was transferred to the Northern district at Minneapolis. Mr. Weidenhamer retired from active service in 1926.

George H. Ingalls, vice-president in charge of traffic of the New York Central, with headquarters at New York, died of a cerebral hemorrhage at his home in that city on June 14. Mr. Ingalls was born on July 28, 1872, at Boston, Mass. He was educated at Harvard University, and entered railroad service as clerk in the office of the general manager of the Chesapeake & Ohio in 1893. From 1895 to 1896 he was successively clerk in the general superintendent's office and clerk in the office of the president of the same road. He was appointed assistant to the president of the C. & O. on the latter date. In the following year he became assistant general freight agent on the Cleveland, Cincinnati, Chicago & St. Louis at Cincinnati, Ohio, and in 1902 he was advanced to general freight agent on the same road, the Cincinnati Northern and the Dayton & Union. He was promoted to freight traffic manager in 1906 and in 1917 became traffic manager of the New York Central, Lines West of Buffalo. He became traffic assistant to the regional director, United States Railroad Administration, in 1918 and in 1919 was appointed vice-president in charge of traffic for the New York Central Lines,

George H. Ingalls

the position he held at the time of his death.

George Hillyer, Jr., mechanical engineer employed in special research and valuation work on the Southern at Washington, D. C., died on April 24. Mr. Hillyer was born on November 6, 1872, at Atlanta, Ga., and was a graduate of the University of Georgia in 1893 and of Cornell University, where he received his M.E. degree, in 1896. He first entered the service of the Southern in 1896, where he remained until 1900, when he became a designing engineer for the American Car & Foundry Company. From 1903 until 1912 he was in the em-

George Hillyer, Jr.

ploy of the American Radiator Company and in 1913 was appointed special valuation engineer of the Georgia Southern & Florida. During the period of the United States Railroad Administration the Georgia Southern & Florida became a part of the Southern Railway System, and Mr. Hillyer continued his valuation work for the Southern as mechanical engineer. Mr Hillyer was also active in the American Society of Mechanical Engineers, at the time of his death being a member of the General and Survey Committees of the Railroad Division.